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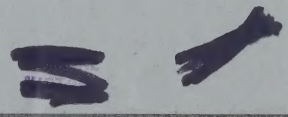

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THE LANCET

A Journal of British and Foreign Medicine, Surgery, Obstetrics, Physiology, Chemistry, Pharmacology, Public Health, and News.

IN TWO VOLUMES ANNUALLY.

VOL. CCXIII.

Pt. 2

VOL. II. FOR 1927.

ONE HUNDRED AND FIFTH YEAR.

EDITED BY

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APR 16 '28
Bdy.

LONDON

PUBLISHED BY THE PROPRIETORS, THE LANCET LIMITED, NO. 423, STRAND, AND NO. 1, BEDFORD STREET, STRAND, IN THE COUNTY OF LONDON, AND PRINTED BY HAZELL, WATSON & VINEY, LD., 52, LONG ACRE, W.C.2.

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An Address

ON THE

EARLY SYMPTOMS OF DISEASE, WITH SPECIAL REFERENCE TO THE EYE.

Delivered at the Opening of a Post-graduate Course at the James Mackenzie Institute for Clinical Research, St. Andrews,

BY A. MAITLAND RAMSAY, M.D., LL.D., F.R.F.P.S. GLASG.,

HON. DIRECTOR OF THE INSTITUTE; CONSULTANT OPHTHALMIC SURGEON TO THE ROYAL INFIRMARY, GLASGOW.

THE laboratory has played such a predominating part in the undergraduate education of the doctor of the present day that there is a danger that he has been taught to rely too much on instruments of precision and bacteriological and biochemical equipment. An exaggerated importance has come to be attached to all means of that kind, and a subordinate position has been given to the information gained by careful observation of symptoms and by a wise consideration of the general condition of the patient. Nature is constantly performing experiments in the laboratory of the human body, and although the results of such experiments are far too delicate to be measured by test-tube or balance, they are always revealed by the occurrence of symptoms. In order to learn how to interpret symptoms, the mind must be trained to become familiar with the natural history of disease. It is not possible to offer a prognosis from a series of barren facts. It is necessary that a general truth be extracted from the observation of a multitude of isolated symptoms, which must be interpreted before their meaning can be understood.

SYMPTOMS: THEIR CAUSATION AND SIGNIFICANCE.

The causation and significance of symptoms must be explained, in the first instance, by the physiologist, but he must work in close collaboration with the clinician, because many of the truths he endeavours to teach can be demonstrated more clearly at the bedside than in the laboratory.[1] A hypothesis based on clinical evidence may be proved to be wrong, but if it has served as a guide it may, in the long run, lead to important results, and pave the way to the discovery of true facts. Much purely laboratory investigation has failed for want of clinical direction.

Symptoms present a new interest when an objective cause is discovered to explain their occurrence. In the great majority of cases the earliest symptoms of disease are produced by reflex action, which in all probability takes its origin primarily in the capillary system.[2] The rôle played by the capillaries is distinct from that of the heart and blood-vessels.[3] The capillaries are not simply tubes through which blood flows. The capillary wall is in all probability formed out of the tissue in which it lies, and is not merely an attenuated extension of the vascular system. The cells of an organ have a direct influence upon the capillaries, and much depends upon the manner in which they react to the call of the tissues for nourishment—to the "hunger" of the tissues, as the late Clifford Allbutt used to say. The capillaries are, however, very susceptible to every morbid influence. They are at once distended by blood vitiated by bacterial or biochemical toxins.[4] Such a change in the capillaries can be proved by experiment, as, for example, when a toxic substance is injected intravenously in a living animal. The congested state of the capillaries causes slowing of the circulation, which is always accompanied by impairment of the function of the organ concerned. It may be stated as an axiom that the distribution of capillaries is always greater in proportion to the functional activity of the tissue in which they lie, consequently the functional activity of every organ of the body depends upon the rate at which blood circulates through its capillaries. Take the kidney in general toxæmia, for example. The toxins in the blood cause great dilatation of the capillaries of the glomeruli, and in proportion to the slowing down of the local circulation the excretion of urine diminishes until it may be wholly suppressed. When therapeutic measures are taken to speed up the circulation in the glomeruli, the output of urine increases immediately and diuresis continues until the reaction of the uriniferous tubules to their capillary supply is restored to the normal condition.

What can be easily demonstrated by experiment in the kidney can be seen in the eye by means of the ophthalmoscope. The objective examination of every part of the eye has reached a degree of perfection which has no parallel in any other part of the body. A study of the living eye, therefore, enables an observer to see what is going on, and as the basis of all vital activity is either chemical or electrical, it is reasonable to assume that what occurs in the eye will, under like conditions, also occur in other parts of the body where the phenomena are hidden from view. There is a unification of physiological and pathological processes. As disease is simply a perversion of natural processes, symptoms of disturbance of function must inevitably precede any signs of damage to structure sufficiently gross to be detected by any instrument of precision or by chemical or electrical tests. It is a matter of common experience in the study of the eye that in certain cases subjective examination affords earlier and more accurate information than can be got by an ophthalmoscopic examination. In what follows I wish to draw attention to the value of the information that is to be got from a careful study of those symptoms associated with disorder of the visual function.

DISORDERED FUNCTION IN THE EYE.

From the point of view of general physiology the characteristic feature of vision is the reception of light by the retina.[5] The rods and cones must be regarded as the functioning unit of the eye in the same way as the muscle-fibre is the functioning unit in the heart and the glomerulus in the kidney. That is important, because the first step in the study of derangement of function of any organ is to determine its functioning unit, and of equal importance with the functioning unit itself is the study of its capillary supply. The unit together with its capillaries are the organ in miniature, and functional activity depends upon the manner in which these two constituents react upon one another. Whenever the capillaries of the choroid or of the retina are congested the light sense becomes impaired. The rods and cones are supplied by the blood-vessels of the choroid—the choriocapillaris—while the inner layers of the retina, including the ganglion-cells and the nerve-fibres, are nourished by the capillaries associated with the retinal blood-vessels. The feeblest light capable of causing sensation is known as the light minimum. It is always disturbed in diseases which interfere with the circulation in the choriocapillaris and thereby starve the rods and cones of the retina. If, on the other hand, the capillaries in association with the retinal blood-vessels are disturbed, the ganglion-cells and nerve-fibres suffer, and a greater contrast in illumination is necessary before a difference can be appreciated. The smallest increase in brilliancy of one of two lights is spoken of as light difference. Increase in light difference implies, therefore, that the conducting apparatus of vision—ganglion-cells and nerve-fibres—is affected, whereas increase in light minimum is the earliest symptom that the receiving apparatus of vision—layer of rods and cones—is at fault. It is true that the eye differs from other sensory organs in that there is not merely a threshold of sensibility, but also a variation in the threshold according to any change occurring in the surrounding illumination. That special function is spoken of as adaptation,[6] and the eye possesses a wide range of adaptation for light and darkness, corresponding to the daily variation in the intensity of the light. In fact, the human eye is capable of adapting itself to almost any degree of illumination; consequently,

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results of the examination of the light sense will vary according to the conditions in which the test has been applied. Moreover, the tests for light minimum and light difference are not interchangeable, because, as has already been pointed out, each has its own special value and diagnostic significance. A study of the light sense, however, has more than an academic interest; it has a real clinical value. For laboratory investigations many different photometers have been devised, but for clinical examinations Percival's discs[7] and Young's threshold tests[8] are satisfactory and convenient. By their help the examiner can quickly discover increase either in light minimum or in light difference. An increase in light minimum denotes that there is a lesion in the layer of rods and cones or some insufficiency of the visual purple, and is always present in deep hæmorrhage in the retina, and in all inflammations either of the retina or of the choroid in which the rods and cones are implicated. Increase of the light difference, on the other hand, denotes that there is a lesion of the superficial layers of the retina. It is diagnostic of toxic amblyopia, or of inflammation or atrophy of the optic nerve. It often happens that an intelligent patient suffering from failing sight so describes the onset of his symptoms that the examiner at once gets a clue to the diagnosis. Let me give an instance:—

A sailor, who was suffering from advanced atrophy of both optic nerves, told me that the first thing that made him fear there was something wrong with his sight was the discovery that his companions on the watch were able to pick up land more quickly than he could, whereas he knew that formerly he was able to distinguish land a considerable time before anyone else on the ship. He was all the more impressed by this disability because, even when he was so far behind his fellows in distinguishing land, he could see a light at night as well as ever, and frequently before the officer and the others on the watch. In this case it was obviously an increase in light difference that was the first symptom of disease, and its prompt recognition might have enabled a diagnosis to have been made, and appropriate treatment to have been begun, while yet there was a chance of cure, instead of waiting until the pathognomonic ophthalmoscopic changes of optic atrophy had become visible. By that time the disease had reached a stage when cure was impossible, the fibres of the optic nerve having become atrophied as a result of the obliteration of their capillaries.

An increase in light minimum is usually accompanied by colour-blindness for blue, small dark blue objects, for example cornflowers growing in a field, are not seen to be blue but appear to be quite black. I will give an example of this:—

A milliner consulted me because she thought her sight was failing rapidly. There was, however, no diminution in the visual acuity when tested with the ordinary types, but she said that although she was able to see fairly well in a bright light, she was sure that she was having more difficulty than formerly in seeing to work in the evening or by artificial light. Moreover, she always considered that her colour sense was perfect, but of late she had been making serious mistakes over shades of blue, and when tested it was discovered that, whereas she had no difficulty in distinguishing red or green, there was a definite central scotoma for blue. The eyes were irritable, the pupils contracted, and the fundus oculi congested. In this case the discovery of the increase of light minimum and the colour-blindness for blue were the most important factors in diagnosis. Both are well-recognised symptoms of congestion of the choriocapillaris, and treatment prescribed with the object of reducing that congestion restored sight to normal in less than a month.

GLAUCOMA.

The chief interest in such a case arises from the fact that increase in light minimum is the earliest symptom of glaucoma. The patient usually has to change his reading spectacles repeatedly at very short intervals. He may say also that now and again he suffers from attacks of transient loss of vision, and that more or less constantly he sees coloured halos like a rainbow round gas, lamp, or candle flame. Such symptoms are almost certainly premonitory of glaucoma. The patient probably mentions them casually, but if they be appraised at their proper value means will at once be taken to check the disease before increase in intraocular tension has become permanently established. It is only after the optic nerve becomes injured by increase in intraocular pressure that the light difference becomes affected. That observation has an important bearing on the pathogenesis and the treatment of the disease. It proves the existence of a morbid process affecting the choriocapillaris prior to the occurrence of blocking of the filtration spaces at the corneo-iridic angle. At the onset of glaucoma it is very unlikely that an eye can be examined microscopically, hence the importance of the symptom. It is only after the disease is thoroughly established that an eye may have to be enucleated. In such circumstances the most painstaking laboratory examination can only reveal end-results. It can throw no light on the beginnings of the disease. Moreover, although decompression operations by reducing intraocular tension can in many instances stay the progress of the disease, yet, as they do not remove the cause, they cannot be regarded as a cure for glaucoma. In some cases, as is well known, the disease continues to advance in spite of the best surgical skill, and in the great majority appropriate constitutional treatment is necessary both before and after operation.

Difficulty in seeing in a dim light may be a patient's chief complaint. He says that he suffers no inconvenience in ordinary daylight, but as soon as twilight sets in he sees so badly that to all intents and purposes he is blind. This form of night blindness is a sure indication that pathological changes are in progress in the bacillary layer of the retina accompanied by failure in the regeneration of the visual purple. That is to say, that the constructive metabolism of visual purple cannot keep pace with its consumption. The sympton is pathognomonic of that form of degeneration of the retina known as retinitis pigmentosa, which, in its typical form, gives such a characteristic picture on ophthalmoscopic examination. In some cases of night blindness, however, the ophthalmoscope reveals nothing abnormal, and in these circumstances the recognition of the symptom is of the greatest value. The disease may be hereditary and congenital, and is often discovered accidentally. The parents never suspect that their child's sight is affected until they notice that if it be out of doors after sunset it becomes so blind and helpless that it may have to be carried home. Night blindness sometimes occurs in adults as a result of malnutrition, over-fatigue, or dazzling of the eyes from exposure to bright sunlight. Many such cases were seen among the soldiers engaged in the Great War. Diet may be ample in quantity, but if it be deficient in essential vitamins sight is rapidly and seriously affected.

ABNORMALITIES OF VISION.

There is another group of cases in which the patients see best in a dull light and in which an outstanding symptom is an increase in light difference. Let me give an example.

A patient, usually from 40 to 60 years of age, may say that for a considerable period his sight has been misty—so much so, indeed, that he has for several weeks experienced difficulty in reading ordinary type and that during the past few days it has suddenly become so much worse that he is quite unable to read or write. He may also complain that he cannot even recognise friends when he meets them in the street and may add that he is shocked at the appearance of his friends; they look so ill and "corpse-like," all healthy colour being absent from their face. He also may say that he sees best in a dull light; that in bright light he is easily dazzled; a whitish or yellowish mist rises like a cloud in front of the eye and prevents him from seeing clearly. Towards sunset however, this sense of dazzling disappears, and in consequence he can always see best in the evening. He may also complain spontaneously that his colour sense is disordered, and testing will show that while he has no difficulty in distinguishing red and green in the peripheral parts of the field of vision, he is unable to perceive these colours in the central area. Red appears brown and green appears white. As the

disease progresses those colours assume a metallic lustre, red is said to "glitter like gold" and green to appear "like silver." In some cases blue is a strikingly predominant colour—a bunch of sweet peas is thought to be made up of blooms of different shades of blue. I remember an artist whose sight was beginning to fail. He had been famous for the brilliant colouring of his pictures, but at this period his friends could not understand how it was that the reds and the greens were completely overshadowed by a predominance of blue in everything he painted. It is interesting that this peculiar colour defect is very often associated with the presence of oxalate of lime crystals in the urine—one of the most reliable signs of disordered metabolism.[9]

The defect is in the centre of the field of vision, and any object in the line of fixation is a blank, but the patient cannot be said to be blind, because he can see on all sides of the centre of the visual field. Such a blank is called a scotoma, and as the patient is not conscious of anything intervening between him and the object looked at it is said to be negative. When, on the other hand, the scotoma is positive, the patient complains that a black spot covers every object he looks at directly, and if he gazes at the sky or a white wall, he sees a dark patch straight in front of him. This distinction between a negative and a positive scotoma is of considerable clinical value, because the former always implies a lesion of the nervous system, whereas the latter indicates that the retinal elements subjacent to the lesion are intact. If, for example, a patient on awakening from sleep discovers that he sees imperfectly with one eye, and a negative scotoma is discovered, he is suffering from a lesion of the optic nerve; whereas if a positive scotoma be present, the lesion must be situated in front of an intact layer of rods and cones, and is in all probability a hæmorrhage. The patient sees the blood-clot in his own eye.

Defect of sight in these circumstances at once suggests that the trouble is due to excessive indulgence in tobacco or alcohol, or both; and careful examination will in most instances confirm that opinion. A central negative scotoma, however, is not always pathognomonic of toxic amblyopia, for a similar blank in the centre of the field of vision occurs in disseminated sclerosis, in hereditary optic atrophy, and in inflammation of the air sinuses adjacent to the orbit when there is pressure on the optic nerve in the neighbourhood of the optic foramen. In those conditions, however, one eye only is implicated or one eye is affected much in advance of the other, and the more serious cases are accompanied by a pronounced feeling of exhaustion, while in toxic amblyopia the dimness of vision is, as a rule, equally pronounced in both eyes, and the patients are usually strong and healthy. In every case the diagnosis must be made from a careful examination of symptoms rather than from any characteristic ophthalmoscopic appearances. Indeed, in toxic amblyopia the contrast between the gravity of the symptoms and the absence of any distinctive lesion that can be discovered with the ophthalmoscope is one of the most striking features.

OTHER DEFECTS IN PERCEPTION.

Occasionally a patient complains that every object looked at is altered in size, or is thrown out of proportion and twisted. This symptom is known as metamorphopsia, and is often of very serious import. The distortion may, of course, be due to errors in the optical construction of the eye, but is much more likely to be induced by pathological changes in the retina itself, and is then significant of grave disorder of vision and usually means inflammation of the choroid. In this case it is caused by some change in the relative position of the rods and cones, and is most serious when the macular region is implicated. In some instances, where the percipient elements of the retina are separated by exudation, objects appear too small (micropsia); in others, where the percipient elements are crowded together owing to cicatricial alterations, they seem too large (macropsia); and in still others they assume very irregular shapes. It is sometimes difficult to detect with the ophthalmoscope the changes that give rise to the metamorphopsia, hence the value of the symptom in leading to a correct diagnosis.

That is in marked contrast to the condition in which symptoms are due to a change in the refractive media, the functioning unit remaining intact. It is very significant when a patient who has required to wear glasses for reading finds that he sees better without them. He is generally much pleased at the discovery, and says he has got his "second sight." If, however, his vision be tested, it will be found that he is now myopic, and requires concave glasses to enable him to see in the distance. Very probably he may say also that when he looks at the moon it appears doubled or quadrupled—monocular polyopia. Such a combination of symptoms is certainly due to changes taking place in the lens, and is in most instances premonitory of cataract. It is very important that the disease be recognised at such an early stage, because this allows of careful ophthalmoscopic examination of the fundus, and the detection of any pathological changes in the choroid or retina, at a time when the lens is still sufficiently transparent to permit these structures to be seen. Transient changes in refraction, whether in the direction of myopia or hypermetropia or an unusually early onset of presbyopia, should never be passed over without careful consideration. In such circumstances, in addition to the use of the ophthalmoscope, the urine ought always to be examined, because that derangement of the visual function may lead to the early diagnosis of glycosuria.[10]

Patients frequently complain of muscæ volitantes, but though these often give rise to much annoyance they do not indicate the existence of organic disease unless floating bodies be seen on ophthalmoscopic examination. They point, at the most, to a condition of retinal hyperæsthesia, determined, in all likelihood, by prolonged application of the eyes to close work. In these circumstances the refraction ought to be carefully tested, the urine examined for oxalate of lime or uric acid crystals, and the patient discouraged from looking for the muscæ, as these are only too prone to reappear whenever attention is directed to them. It is, however, sometimes not easy to draw the line between what may be regarded as physiological and what is pathological. A careful ophthalmoscopic examination is therefore necessary in every case, more especially if the patient be short-sighted, for in these circumstances opacities in the lens, or floating bodies, or hæmorrhages, may be detected in the vitreous humour, and be premonitory of detachment of the retina. In simple myopia there is no disturbance of the light sense, consequently if in an individual case increase in light minimum be detected it is evidence of some interference with the nutrition of the bacillary layer of the retina and adds to the gravity of the prognosis, even in cases in which the ophthalmoscope reveals no structural damage in the fundus. Sparks and flashes of light are often due to disturbance of the circulation in the retina or choroid, and in many instances they are the first symptoms of disease. In inflammation of the choroid the sensation of dazzling may be very pronounced, and be accompanied by flashes of light of various colours. At other times complaint is made of constant showers of golden dust, or of large numbers of black specks floating in front of the eyes, of stationary spots of larger size, or of a veil which seems to hang in front of the line of vision. In those circumstances it is the least refracted end of the spectrum that causes most trouble, and the patient experiences great relief by wearing peacock-blue glasses which cut off the red rays.

THE STUDY OF SYMPTOMS.

It is often said that a straw shows the direction from which the wind is blowing, but if the observer is not sure of his own orientation he learns nothing

from watching the movements of the straw until he consults a compass. Accurate knowledge of clinical physiology is the physician's compass, and if he can read it correctly he will never go far astray. A complaint of discomfort is usually all that is revealed of the beginnings of disease. In the case of the eye these subjective sensations are referred to the organ itself, but in the majority of instances—for example, those associated with the heart or the kidney[10]—they are referred to some other part of the body. Such symptoms are usually slight and transient and on that account are easily overlooked and forgotten, but when properly interpreted they convey much information at a time when to possess it redounds not only to the benefit of the patient, but also to the credit of the physician. The illustrations I have given have been drawn from ophthalmology, because my own clinical experience has been gained by a study of diseases of the eye. It is, however, essential to bridge over the gap between narrow specialism and general medicine, because no progress can be made until it is recognised that the principles of general physiology are sufficiently broad and deep to include every organ of the body. To emphasise specialism is a retrograde step. It is always the same physiological and pathological processes that are at work. Peculiarities of anatomical structure are the cause of many of the signs and symptoms in different organs, and complicate a problem, which becomes greatly simplified when attention is focused upon the individual functioning unit and its capillaries. The study of symptoms, which I have tried to prove to be of pre-eminent assistance in connexion with the eye, is of equal value in the study of disorder in other organs of the body. Many family doctors, blessed with a retentive memory well stored with the results of a long clinical experience, possess a marvellous knowledge of the symptomatology of disease, but such knowledge, as a rule, dies with its possessor. It has not been formulated in such a way that others can make use of it after he dies. It ought, however, to be the bounden duty of every general practitioner not only to learn for himself, but also to add something to the general store of medical information. The Clinical Institute has been founded in order to try to remedy this defect, and one of its most important functions is not only to observe, record, and classify symptoms, but also to determine their true physiological foundation in order that their mechanism may be explained and their prognostic value properly assessed. Far from being in conflict with knowledge gleaned from other sources, symptomatology ought to supplement that knowledge and throw fresh light on many physiological and pathological problems. Failures at the bedside may often worry and disappoint the clinician and tempt him to appeal to the laboratory worker for a speedy solution of his difficulties. The laboratory, however, can give no short cut to diagnosis; laboratory methods and clinical methods must be studied side by side.

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EXTENSIONS AT HEREFORD HOSPITAL.—A special meeting attended by over 100 governors of the Herefordshire General Hospital was held recently to consider proposals of the Board of Management to carry out extensive building operations and extensions so as to increase the accommodation to 160 beds and provide maternity and other wards, a private nursing home, and administration offices. The estimated cost is £72,000, and the motion approving of the scheme for 160 beds was carried only by a narrow majority.

A CASE OF
JUVENILE GENERAL PARALYSIS
SUCCESSFULLY TREATED BY MALARIA AND INTRAVENOUS AND INTRATHECAL INJECTIONS.

BY DAVID NABARRO, M.D., B.Sc., F.R.C.P. LOND.,

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UNTIL the introduction of the malarial treatment of general paralysis by J. Wagner-Jauregg, the prognosis of this disease was hopeless, and the patients, after an illness of variable duration, during which one or more remissions might occur, inevitably succumbed. Combined treatment by malaria and antisyphilitic remedies has improved the outlook so much that we do not now regard the disease as incurable, and many patients have been restored to a life of usefulness. It is too early to say definitely whether they have been permanently cured, but I have one patient, whom I treated in conjunction with Sir James Purves-Stewart by the method advocated by him,[1] who has been clinically well for two and a half years. His blood and spinal fluid have been serologically negative for two years, after having been very strongly Wassermann-positive, with the spinal fluid typically paretic in other respects.

Hitherto all records of successful treatment of general paralysis in the literature have referred to adults, and, so far as I can ascertain, there is no recorded case of juvenile general paralysis having been successfully treated either by malaria or by any other means. It is of interest, therefore, to put on record this case of general paralysis in a child who was admitted to hospital apparently a hopeless lunatic and who has recently been discharged to a convalescent home apparently healthy. At the risk of being thought prolix, I have deemed it advisable to go somewhat minutely into the details of the clinical condition and of the treatment employed. My reasons are, first, that the case is historically interesting, because it is the first of its kind to be put on record; secondly, that I have already received requests from several medical superintendents of mental institutions asking me for details of the malarial and other lines of treatment adopted; and thirdly, that it illustrates how prolonged the treatment may have to be before any obvious improvement can be detected in the patient's condition.

History of the Case.

The history of the case is as follows:—

A girl, aged 6 years, was admitted to the Hospital for Sick Children, Great Ormond-street, on July 30th, 1925, under the care of Dr. Robert Hutchison, suffering from "mental disorder." The account as given by the parents was that the child was quite well and mentally normal up to three weeks before admission. She was late in coming home from school one evening, having apparently lost her way and taken five hours over a ten-minute walk. Afterwards her behaviour was strange. She cried and moaned for no apparent reason, she was troublesome and indeed became so naughty that the authorities would not keep her at school. She seemed dazed and made senseless remarks; she could not remember words, but her articulation is said to have been normal. She complained of headaches, but there was no trouble with vision or any other sense organ. Although it would appear from the account given by the parents that the onset of the mental trouble was more or less sudden, the school mistress stated that already, when the patient first attended school in February, 1925—that is, about five months before admission to hospital—she showed signs of abnormal mentality. She was listless and apathetic at times restless and inconsequent in her behaviour. On one occasion she is said to have had a "very unusual screaming fit" when she was brought into school, and towards the end of her stay at the school she took to slapping the other children. The mistress further adds that sometimes she could not give an answer to a question but just repeated the question itself, and she also mentions that th

[1] Brit. Med. Jour., 1924, i., 508.

child was unable to concentrate. There was very little to note in the earlier history; there were no infantile symptoms of syphilis, and according to the mother's account the child was very bright mentally and was able to go on errands for her and bring back the correct change.

Family History.—The parents were married in 1917. There is a history of one miscarriage at three months before the birth of the patient, and another, also at three months, in 1925. The father gives no syphilitic history, and his Wassermann in 1925 was quite negative. The mother likewise gives no syphilitic history, and her Wassermann in 1925 was practically negative (1, 0, 0, 0). Her Kahn test, however, was strongly positive.

Condition on Admission.

The child was physically well-nourished and healthy looking, but was sullen and quiet, and appeared to be unable to understand what was said to her. She was very dirty in her habits. About a week after admission she became very noisy and destructive and had attacks of violent temper, during which she tore up all her bed-clothes, in spite of the fact that she was strapped in her cot with fairly strong webbing and that her hands were encased in stockinged gloves. In one week she managed to tear up four sheets, two blankets, and two counterpanes, and broke four plates and three mugs.

Her speech was very indistinct, and on account of her mental condition she was extremely difficult to examine. The heart and lungs appeared normal; it was impossible to make any adequate examination of her central nervous system, as she was so resistant and demented. Vision appeared to be normal, and the pupils reacted to light and accommodation, but I may mention here that while the patient was under an anæsthetic on one occasion the fundus of the eyes was examined and typical syphilitic choroido-retinitis found to be present. There was no nystagmus. The knee-jerk and abdominal reflexes were present and the plantar reflex was flexor. Mentally the child was like an adult general paralytic—at times smiling fatuously and making meaningless noises, at other times crying and turning away from anyone near her and resisting any examination. She appeared to be suffering from headache, as she frequently put her hands up to her head and screamed. She was unable to feed herself, and although she improved slightly under the ward discipline, she was never taught to be clean and was always very noisy.

The day after admission the blood Wassermann was very strongly positive, and the case was diagnosed as probably one of juvenile general paralysis; this diagnosis was confirmed by the investigation of the cerebro-spinal fluid which was made on August 10th, with the result shown in the table. The Wassermann reaction was strongly positive, the colloidal gold curve and the other changes in the spinal fluid typical of G.P.I. I accordingly suggested to Dr. Hutchison that we might try treating the patient by cistern puncture and the injection of salvarsanised serum. From the summary of the treatment which is given later it will be seen that the first course of cisternal injections was given between August 18th and Nov. 4th, 1925. For this purpose 0·2 g. of novarsenobillon was given intravenously, and half to one hour later the patient was bled to the extent of 20–25 c.cm. The blood was allowed to clot, kept in the ice-chest overnight, and on the following day the serum was removed aseptically and diluted with an equal volume of sterile saline. Under a general anæsthetic cisternal puncture was performed, about 20–25 c.cm. of cerebro-spinal fluid were removed, and an equivalent amount of the diluted salvarsanised serum allowed to run into the cisterna magna. The child received during this course six such injections into the cistern at fortnightly intervals, and during the intermediate weeks she received an intravenous injection of 0·15 g. N.A.B. The child's mental condition certainly showed some improvement during this course of treatment, and reference to the table will show that there was a definite but slight improvement in the cerebro-spinal fluid. This course of cisternal injections with salvarsanised serum was followed up with a course of ten intramuscular bismostab injections given bi-weekly, starting with 0·3 c.cm. and working up to 1 c.cm.; total 7·3 c.cm. At the end of this course the blood Wassermann was still very strongly positive, but the cerebro-spinal fluid showed definite improvement (see table, Dec. 15th–16th, 1925). Mentally, however, the child was in much the same condition. She made inane remarks, repeated all that was said to her, and was still very destructive. She was discharged from hospital for the first time on Jan. 1st, 1926. The mother brought her up for a blood test on Feb. 1st, 1926, when she reported that the patient was much more sensible and talked intelligibly. On March 8th, 1926, the child was in the same condition. Protoiodide of mercury, gr. ¼ t.d.s., was ordered.

Malarial Treatment.

Later, as the child was apparently not improving very much, it was decided to try the malarial treatment upon her. She was accordingly admitted again to hospital on April 23rd, 1926. The blood and spinal fluid were tested on the 26th, and on the 28th mosquitoes were applied and about eight of them fed on the patient. There were irregular rises of temperature from about the thirteenth day after the mosquitoes fed, but owing to the child's wild condition it was extremely difficult to take her temperature. Parasites were found in the blood on the 16th day, 20th day, and 22nd day after infection. Apparently the child had only three definite rigors, and the highest temperature recorded was 105° on one occasion and 105·6° on another. The spleen was felt to be enlarged on the 19th day after infection. As the patient was becoming rather anæmic, it was decided to stop the malarial infections on May 22nd, and to this end the patient was given euquinine, 2 gr., three times a day for five days. Parasites were found in the blood two days afterwards, but not on May 25th or 27th, and she had no more rises of temperature after the quinine was administered.

The patient having recovered from the anæmia caused by the malaria, she was discharged from hospital on June 7th, 1926, in the hope that she would gradually show signs of having received benefit from the malarial treatment. Unfortunately this did not prove to be the case, for the mother reports that during the month after her discharge from hospital the child appeared to be worse rather than better. She was quite unmanageable, threw everything about she could lay her hands on, including cups of tea and anything on the table. She screamed and made so much noise that, in the words of her mother, "it was almost impossible to live with her." Things came to such a pass that the parents were threatened with ejectment from their rooms, and the only advice the mother could get from the local medical authorities was to send the child to an asylum. As I was rather loth to lose sight of her I agreed to take her into hospital again. Her condition on admission to hospital for the third time is best given in the words of the staff nurse, as follows:—

"She resembled a wild animal. She screamed at intervals night and day, flung things about, tore up the bed-clothes and wearing apparel, and threw everything on the floor. She was very dirty in her habits. The resident medical officer, who visited the ward at a critical moment, remarked: 'If Dr. Nabarro thinks he is going to do anything with this child—— Impossible!' He thought she was terrible. Her language was choice and at times she was almost unapproachable. She was unable to feed herself, and if any food was given to her it was thrown on the floor."

Intracisternal Injections.

At this time she was given a mixture of potassium bromide with luminal gr. ¼ three times a day and paraldehyde at night when necessary. It was decided to give her another course of intracisternal injections, this time at intervals of one week only. These were given between July 13th and August 17th, 1926, and already after the second injection she appeared to be

more rational, quieter, and spoke in longer sentences than heretofore. Towards the end of August, when the course of injections was completed, she began to be more docile and was bathed with less difficulty. She gradually became cleaner in her habits and took her food nicely. So rapidly did she now improve that by the first week in September she was allowed to run about in the garden with the other children for an hour or two every afternoon. At the end of September she remembered things she had done at home, as, for instance, having had a game at ball with her father in the park, and the toys she played with. She remembered going to school and things the teacher had spoken about. She became interested in her surroundings and friendly in her manner, each day showing a gradual improvement. In spite of this great improvement in her general behaviour, she had sleepless nights, and it was necessary to continue the bromide and luminal three times a day and the paraldehyde at night. The former was discontinued on Oct. 3rd, 1926, the latter, however, had to be given until Jan. 25th, 1927. Between November, 1926, and February, 1927, she was given sunlight treatment, which she rather enjoyed, and which may possibly have done her some good during the sunless days we then experienced. As the blood Wassermann was still fairly strongly positive and the cerebro-spinal Wassermann also somewhat positive, it was decided to give further subsidiary treatment. On Sept. 7th, 1926, protoiodide of mercury pills, gr. ¼, were given twice a day, but these had very soon to be discontinued owing to the diarrhœa they caused. Between Sept. 13th and Oct. 18th she had 14 c.cm. of bistovol (bi-weekly intramuscular injections of about 1·5 c.cm.). The blood and fluid were tested thereafter (on Nov. 9th and 16th), when the former was found to be still strongly positive, the latter almost negative. As I was very anxious to get the blood Wassermann negative, if possible, I decided to give once a week an intravenous injection of 0·3 g. N.A.B. and an intramuscular injection of bismostab, 0·75 c.cm. These combined injections were given for four weeks, but as they appeared to produce toxic symptoms, such as vomiting and marked pallor, the N.A.B. was discontinued and the patient given the bismostab alone. When the blood was last examined, on March 3rd, 1927, it had improved somewhat but was still fairly strong. I decided now to change over to sulfarsenol intramuscularly, but an injection of 0·24 g. seemed to disagree with the patient, so alternatively she was given ten intramuscular injections of 1 to 1·5 c.cm. bistovol. These were completed on May 20th, 1927, shortly before the child left hospital. The details of the treatment given to the patient can best be seen from the summary which follows, and if this be compared with the table the effect of the treatment upon the condition of the blood and cerebro-spinal fluid at any particular date can be ascertained.

Summary of Treatment.

1925.—August 10th to Nov. 3rd, 13 intravenous injections novarsenobillon at weekly intervals—2·3 g.

August 18th to Nov. 4th, six cisternal injections, 21–26 c.cm., 50 per cent. salvarsanised serum and saline at fortnightly intervals.

Nov. 9th to Dec. 12th, ten intramuscular injections bismostab* bi-weekly. Total, 7·3 c.cm.

1926.—March 8th, protoiodide of mercury, gr. ¼, three times a day for six weeks.

April 28th, eight mosquitoes fed. May 13th, temperature 101° (15th day).

May 14th, parasites found.

Euquinine, gr. 2, three times a day from May 22nd for five days.

July 12th to August 16th, seven intravenous injections N.A.B. (weekly). Total, 2·1 g.

July 13th to August 17th, six weekly cisternal injections, 20–25 c.cm., 50 per cent. salvarsanised serum and saline.

* Bismostab is a preparation made by Boots Pure Drug Co., Ltd. It consists of 0·2 g. bismuth metal in each c.cm. of 5 per cent. glucose solution.

TABLE SHOWING RESULTS OF THE BLOOD AND C.S.F. INVESTIGATIONS.

Date.	Blood Wassermann.	Cerebro-spinal fluid.									
		Cistern or lumbar.	Wassermann.	Albumin per cent.	Globulin.	Cells per c.mm.	Colloidal gold (Lange).	Colloidal mastic.	Colloidal benzoin.	Sugar.	Remarks.
1925.											
July 31st..	4, 4	—	—	—	—	—	—	—	—	—	—
August 10th	4, 4, 4, 3	L	4, 4, 4, 4	0·035	<2	17	5554310000	—	—	+	—
August 18th	—	C	4, 4, 4, 4	0·04	<2	12	5555432110	—	—	+	—
Sept. 1st ..	—	C	4, 4, 4, 4	0·025	3	2	4555321000	5433100000	5554	+	—
Sept. 29th.	—	C	4, 4, 4, 3	0·03	trace	3	4533210000	3321000000	5531	+	—
Oct. 12th–13th	4, 4, 4, 4	C	4, 4, 4, <4	0·025	0	10	1232100000	2210000000	5444	+	Fluid slightly blood-stained.
Oct. 28th .	4. 4, 4, 4,	—	—	—	—	—	—	—	—	—	—
Nov.3rd–4th	4, 4, 4, 4	C	4, 4, 4, 1	0·02	0	1	3333210000	1210000000	5400	+	—
Dec. 15th–16th	4, 4, 4, 4	L	4, 4, 4 *	0·02	—	0	2333321000	—	—	+	—
1926.											
Feb. 1st ..	4, 4, 4, 4	—	—	—	—	—	—	—	—	—	—
March 26th	4, 4, 4, 4	L	4, 4, 3, *	0·02	? trace	3	2333210000	—	—	+	—
July 12th–13th	4, 4, 4, 1	C	4, 3, 2, 0	0·03	0	1	—	—	—	—	—
July 21st..	—	C	2, 0, 0, 0	0·025	0	3	1211000000	—	—	+	Chlorides 7·5 g. per litre.
Aug.3rd–4th	4, 4, 4, 4	C	3, *, *, 0	0·03	0	4	1211000000	—	—	+	Chlorides 7·6.
Aug. 9th–10th	3, 2, 1, 0	C	4, <2, 0, 0	0·04	trace	2	1210000000	—	—	—	Fluid blood-stained.
Aug. 16th–17th	4, 4, 3, *	C	4, 2, 0, 0	0·03	0	2	1112210000	—	—	+	Chlorides 7·8.
Nov. 9th..	4, 4, 3, *	—	—	—	—	—	—	—	—	—	—
Nov. 16th.	—	L	<2, 0, 0, 0	0·025	trace	1	1121000000	—	—	+	Kahn test doubtful.
1927. March 7th–8th .	4, 1, 0, 0	L	1, 0, 0, 0	0·03	0	1	1221100000	—	—	+	Kahn test negative.

In reporting on the blood Wassermann, when two figures only are given, it means that a dilution of serum 1 in 15 was employed with three and five minimal hæmolytic doses, or units, of complement respectively. When four figures are given, these refer to serum 1 in 15 and 1 in 30 dilutions, with three and five units of complement respectively. The figures themselves (4, 3, 2, 1, &c.) refer to the amount of hæmolysis which has taken place in the test-tube, 4 indicating a complete absence of hæmolysis (strong positive). 0 = complete hæmolysis, and 1, 2, 3 progressively diminishing amounts or degrees of hæmolysis. The sign < indicates that the reaction was not quite as strong as the figure before which it occurs. * means that the tube was not quite cleared and that there was not sufficient sediment to call the reaction (1). In the case of cerebro-spinal fluid, the numbers represent the same degree of hæmolysis as in the case of the blood serum, but the amounts of fluid used are different. The four tubes contain respectively 2 vols., 1, ½, and ¼ vol. of cerebro-spinal fluid, giving 1 in 2, 1 in 3, 1 in 6, and 1 in 12 dilutions of the cerebro-spinal fluid, and to each tube is added 3 units of complement only.

Sept. 13th to Oct. 18th, ten intramuscular injections bistovol† (bi-weekly). Total, 14 c.cm.

Nov. 29th to Dec. 20th, weekly injections N.A.B., 0·3 g. (intravenous) and bismostab, 0·75 c.cm. (intramuscular). (Four given, then stopped on account of vomiting and pallor.)

Dec. 24th, 1926, to Feb. 11th, 1927, eight intramuscular injections bismostab, 0·75 c.cm. Total, 6 c.cm.

1927.—March 3rd. As the Wassermann was still positive (4, 1, 0, 0, Kahn P. P. P.), sulfarsenol, 0·24 g., was injected intramuscularly, but as patient was ill after it, resorted again to bistovol, 1–1·5 c.cm., in all 13 c.cm.

May 20th, she was successfully vaccinated prior to going to convalescent home.

Remarks.

While it is as yet too early to regard the patient as "cured," her mental and physical condition show such an amazing improvement and the serology of the blood and spinal fluid have progressed so far towards normality, that I have reported the case in order to encourage others who may have such cases under their care to try similar lines of treatment. An important point which this case brings out is the fact that after even a year's prolonged treatment by various methods the child's condition was apparently no better than it was when treatment was begun. It is, however, possible that if one had waited a few months longer after the cessation of the malarial treatment, an improvement in the patient's mental condition might have taken place, but as I have already stated, the alternative was between sending the child to an asylum or the ejectment of the parents from their home if no further active steps were to be taken. It may be asked why such a variety of drugs and so many different forms of treatment were tried, so that it is impossible to say definitely to which line of treatment is due the success which has been attained. This criticism is valid, but the main object was to see whether a case of juvenile general paralysis could be improved or cured by any means whatsoever. Now that this has been shown to be possible future cases may be treated by any one or more particular line or combination of treatment, in order to ascertain which gives the best results. There can be no doubt that the earlier the case comes under observation and the sooner treatment is started the better must be the outlook for the patient. This was another reason which prompted me not to wait too long for signs of improvement before trying another line of treatment. I may mention here that I have at present under observation two other cases of juvenile paralysis which have had malaria given to them and are now having the ordinary antisyphilitic treatment. It will be interesting to see if these cases do as well clinically and serologically, without the cisternal injections, as the child whose case is above described has done after her combined treatment. Malarial treatment is also being tried on a small number of children whose cerebro-spinal fluid is Wassermann-fast, but who have no symptoms or other signs of disease of the central nervous system.

Conclusion.

If, subsequently, it be found that the treatment of juvenile general paralysis cannot be materially simplified or shortened beyond that of the case herein reported, the question may legitimately be asked—and, indeed, has been asked—whether the expenditure of time and energy, thought and care involved, is really justified. The answer to this question depends entirely upon the future course of this and similarly treated cases. If my patient remains in substantially the same mental condition as she is at present and proves herself educable, as I have every reason for believing her to be, and if she grows up to healthy womanhood and has healthy children, then the answer to this question is unhesitatingly "Yes." Medical attention alone would not have achieved the success recorded, and the fullest recognition possible must be given to the sisters and nurses of the wards in which the patient was for so long an inmate.

† Bistovol is made by May and Baker and is the bismuth acetylamino-oxy-phenylarsinate of Levaditi.

In conclusion, I should like to put on record my thanks to my colleague, Dr. Robert Hutchison, for handing the patient over to my care for treatment; to my assistants, Dr. D. McClean and Dr. B. B. Sharp, for help in many ways and on many occasions during the injections and other manipulations, and in carrying out the pathological investigations; to Colonel S. P. James and his assistant, Mr. P. G. Shute, for help with the malarial infection; and to all others who contributed directly or indirectly to the success of the treatment; and in particular to my staff nurse, Miss Irving, and her assistants, whose infinite patience and great care and attention contributed in no small measure to the recovery of the patient.

CARBUNCLE OF THE KIDNEY,

WITH REPORT OF A CASE.

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CARBUNCLE of the kidney, though a rare and somewhat unfamiliar condition, occurs often enough to merit recognition as a distinct clinical entity. This, as I hope to point out, is all the more important since the prognosis is generally very good when an early diagnosis is made and active treatment instituted, whereas failure to recognise the condition may lead to disastrous results. It may be described as a hæmatogenous infection of the interstitial tissue of the kidney producing a localised and circumscribed zone of multiple suppurating foci, leaving the remaining renal substance unaffected. There is always a primary focus, as a rule a furuncle of the skin. Israel [7] was the first to observe the condition in 1890, in a case a full account of which was given in 1901 in his classical "Klinik der Nierenkrankheiten." The first complete account was given in 1920 by Barth,[1] who described five cases and pointed out many of the diagnostic and pathological features. Since then many cases have been added to the literature.

The following case is described here since it represents a fairly characteristic clinical picture and illustrates many of the pathological features.

A Case Related.

The patient, a married women, aged 52, developed a bad carbuncle of the neck during January, 1926. This was incised, the pus evacuated, and a steady recovery ensued. Whilst convalescing she took a sea voyage, during which, at the end of the first week in February, 1926, she knocked her left loin rather severely against a bunk. Ten days later she was taken ill with severe pain in the left side, high temperature, and general malaise. There were no urinary symptoms. A diagnosis of influenza and pleurisy was made, and the patient was landed and brought back to England. The patient continued to run an irregular temperature and complain of intense pain in the left side of the abdomen and loin, and her general condition became worse. There were occasional rigors.

The patient was examined on March 5th, 1926, when the temperature was 101° F, the pulse-rate 96 per minute, and respiration-rate 20. On the back of the neck was a large scar of a recent carbuncle. The anterior abdominal wall and the muscles of the back on the left side were rigid, and there was great tenderness on palpation. Deep in the left loin an ill-defined tender swelling could be felt. No other abnormal physical signs were detected. A radiogram of the renal tract showed a normal kidney shadow on the right side, and an ill-defined shadow in the left loin, which looked like an enlarged kidney. The urine revealed nothing abnormal on analysis. Microscopically casts and leucocytes were absent.

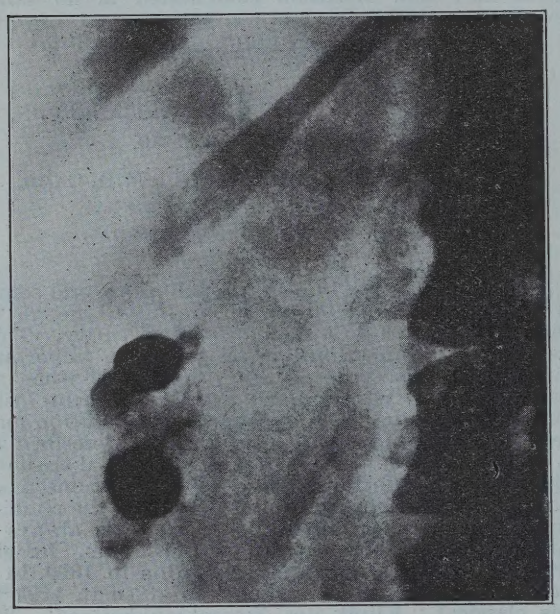
The swelling rapidly increased in size, a diagnosis of perinephric abscess was made, and on March 8th, 1926, the left kidney was explored by Mr. Frank Kidd. A perinephric abscess was opened and drained, and on inspecting the kidney its lower pole was bulged by an ill-defined indurated swelling. Nephrectomy was performed and the wound drained. The pus from the abscess was found to contain *Staphylococcus aureus* in pure culture. During her convalescence a course of

injections of collosal manganese and staphylococcic vaccines were administered. A slow but uneventful recovery followed.

Ætiology.

Carbuncle of the kidney is a rare disease. Up to 1926 Smirnow [10] was able to collect 26, including his own and reported cases. Most of the patients were between 20 and 55 years of age. Barth [1] and Colmers [3] each recorded the condition in a girl aged 10 years,

FIG. 1.



Abscess cavity of a carbuncle in kidney injected with bismuth paste. (*Kindly lent by Mr. Frank Kidd.*)

and this would appear to be the earliest recorded age. The oldest case I can find in the literature is that published by Reschke [9] of a man aged 55 years. Men are more frequently affected than women. Of 33 cases collected from the English and German literature, including the one described above, 23 were males and 10 were females. The greater incidence in men may in part be accounted for by the greater exposure to trauma.

With few exceptions, the individuals affected are, except for a staphylococcal lesion of the skin from which they are usually recovering, otherwise healthy. The primary focus may be, and frequently is, a trivial lesion of the skin, such as a furuncle of the neck. This or a carbuncle of the neck is the source of the staphylococci in most cases. Various other primary lesions have, however, been recorded. Thus it has followed bone infection as in cases described by Souper [11] and Kreschner,[8] whitlow of finger (Fisher [5]), and prostatectomy as in Horn's [6] case. Trauma is not only an important predisposing factor, but also of considerable significance in determining the site of the lesion. A history of trauma was obtained in my case, and although not often mentioned in the literature may frequently occur in some trivial form easily forgotten by the patient. Its importance as a factor in lowering the resistance of the kidney will be referred to again.

Clinical Features.

The onset of symptoms with malaise and intermittent fever is usually gradual and insidious, and generally commences between two and eight weeks after the primary infection. Pain in the side is an early and constant feature. It begins in the loin or lower part of the chest behind, and steadily getting worse soon involves most of one side of the abdomen. The pain is felt as a constant dull ache, does not tend to radiate, and is generally made worse by movement or taking a deep breath. Rigors are frequent. Vomiting sometimes occurs, and in the case of large perinephric swellings there may be a dry cough.

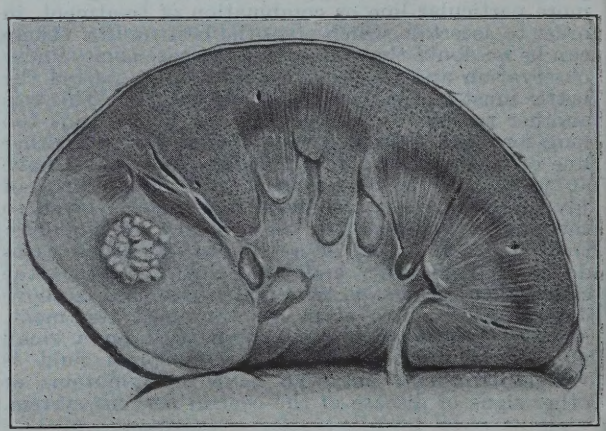
On examination, the respiratory movement of the lower part of the chest on the affected side is restricted and there is early rigidity of the muscles of the back and loin. Pressure aggravates the pain, and after a few days an ill-defined, extremely tender swelling may generally be felt deep in the loin. This may at times actually produce a bulging of the affected side. Urinary symptoms are usually conspicuously absent, but frequency and dysuria have on rare occasions been reported. The urine is generally normal, or a trace of albumin and a few leucocytes may be present, but catheter specimens are sterile. Blood-counts always show an obvious polymorphonuclear leucocytosis. The clinical picture is therefore that of a perinephric abscess.

Diagnosis.

The certain diagnosis of renal carbuncle can only be made at operation. The occurrence, however, of a pyrexial illness, accompanied by chills, pain, and swelling in the loins within a few weeks of a primary staphylococcal infection of the skin, particularly when there has been a history of a blow to one kidney region during the intervening time, should always lead one to suspect the possibility of this condition.

In the first few days of illness, the unexplained pyrexia may suggest an influenzal attack, or, where pain is an early feature, pleurisy or pneumonia may be suggested, particularly as cough and diminished movement over one pulmonary base may occur; but careful examination of the lungs will fail to reveal any other abnormal signs. A *Bacillus coli* pyelitis may be

FIG. 2.



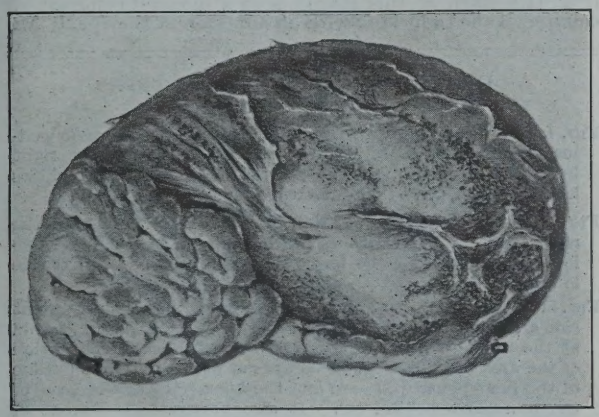
Section of kidney showing area of multiple purulent foci at lower pole, surrounded by a broad zone of fibrous tissue. The renal pelvis is healthy. (*Drawn by W. Thornton Shiells.*)

simulated, but frequency of micturition and dysuria are not common; the urine is nearly always sterile and free from pus, and the usual alleviation of symptoms does not follow the administration of alkalies. Within a few days of onset a deep-seated swelling appears, which is generally recognised as a perinephric abscess. Psoas abscess, and on the right side appendix abscess, or even acute cholecystitis may all have to be excluded by a careful consideration of the history and physical examination. The presence of a primary suppurative lesion may suggest the possibility of secondary metastatic abscesses in the kidney. In this condition the urine always contains a considerable amount of albumin, pus, and organisms. Moreover, the renal function, as estimated by the rate of excretion of dyes, is not impaired in renal carbuncle, whereas gross impairment occurs in secondary metastatic abscesses.

of the kidneys. These important distinguishing features were first pointed out by Barth.[1]

When at operation the perinephric abscess is drained, inspection of the kidney will generally reveal a swelling at one pole, with the point at which it has ruptured visible on the surface. If, after draining what is believed to be a simple perinephric abscess, the wound continues to discharge after a reasonable period of time has elapsed, the possibility that a carbuncle in the kidney has been overlooked should be suspected. In that case a subsequent exploration will be necessary. Considerable help may be obtained by injecting the sinus with bismuth paste or lipiodol, when the presence

FIG. 3.



Outer surface of kidney showing thickened and inflamed capsule, and at the lower pole a yellow necrotic area where the carbuncle has perforated and reached the capsule. (*Drawn by W. Thornton Shiells.*)

of an irregular cavity within the kidney substance may be demonstrated (Fig. 1).

Pathology.

The *macroscopic appearance* of the condition is shown in the accompanying illustrations. On section (Fig. 2) the lower pole is seen to be replaced by a mass, in the centre of which is a number of small yellow purulent foci having a more or less rosette arrangement. Each of these is little bigger than a pin's head. Surrounding these is a broad dense homogeneous zone of fibrous tissue, which merges imperceptibly with the normal kidney substance above, and reaches a much thickened capsule below. No limiting membrane is present. The rest of the kidney has a perfectly normal appearance. The pelvis is a little injected but otherwise healthy. The striking resemblance to the multiple necrotic foci of a skin carbuncle is well seen. From the outer surface (Fig. 3) the inflamed and thickened renal capsule is seen perforated near the lower pole, and the perforation is occupied by yellow necrotic material. It is at this point that the purulent zone reaches the surface, and so, by direct continuity, produces an inflammation of the capsule with abscess formation round the kidneys. Curiously enough, the pelvis is very rarely reached. Although a single carbuncle is the rule, more than one may occur within the same kidney. It is extremely rare for more than one kidney to be affected, but Kretschner [8] records the case of a patient who, after having a nephrectomy for a carbuncle of one kidney, subsequently died of a similar condition in the other.

Microscopic examination in early cases shows that the process begins in the interstitial tissue of the cortex. The yellow areas of softening are occupied by necrotic débris, pus cells, and masses of cocci. Surrounding these is a zone of granulation tissue with leucocytic infiltration and considerable fibroblastic reaction. No trace of renal tissue can be seen towards the centre of the lesion, but on approaching healthy kidney substance little change is observed within the parenchyma, as compared with the interstitial tissue. Here the glomeruli are scanty, replaced by hyaline fibrous tissue, and often surrounded by a hyaline capsule. The tubules show mild catarrhal changes only.

These appearances are in striking contrast with those observed in simple metastatic infections of the kidney seen in pyæmic conditions. Here it is the tubules that are most obviously affected, and these are occupied by renal epithelium, pus cells, and organisms. Where the latter condition is associated with abscess formation, areas of purulent softening are found surrounded by thin pyogenic membranes. These abscesses not infrequently communicate with the renal pelvis.

As in the case of carbuncle of the skin, the *Staphylococcus aureus* can always be obtained in pure culture from the purulent areas.

The special predilection of the kidney to localised infections is extremely interesting. Elimination of organisms from the blood stream may be regarded as a normal function of the kidney, and when this organ is healthy such organisms are always innocuous to it. Lowering of the resistance of the kidney, from whatever cause, may be expected to determine the formation of an abscess within it, and thus trauma of any kind is an important predisposing factor. It has been known, as in Horn's case [6] to follow retention of urine due to prostatic enlargement, and here it is probable that renal congestion favoured the local staphylococcal invasion. In this connexion the experimental work of Brewer [2] is interesting. This worker injected organisms into the circulation of a series of animals, in some of whom the resistance of the kidneys was lowered by various forms of trauma. In 11 out of 16 of the latter animals suppurative foci were found in the kidneys, which in some instances reached the surface and caused perinephric abscess, whereas in those which received no trauma the kidneys remained normal. On microscopic examination the lesions were found to result from plugging of the smaller arterioles and capillaries with organisms.

Treatment.

If the case is seen early medical treatment may be tried, and a course of collosal manganese, staphylococcal vaccines, or sodium nucleinate may be given. When a perinephric abscess is diagnosed, surgical interference will always be required. In that case, as Eisendraht [4] pointed out, simple drainage is never sufficient, and if attempted a subsequent operation will be necessary. In most cases nephrectomy will have to be performed. Colmers[3] analysed the results in 16 cases, and found that of these two patients who had no operation and four who had nephrotomy all died, whereas the other ten patients who had nephrectomy all recovered. Where the carbuncle is found to be single, small, and at one pole, the ideal treatment is to excise it and leave the rest of the kidney, which is always unaffected. This is important, for, as Kretschner [8] has shown, a second carbuncle may occur in the opposite kidney.

As a rule, provided that operation is not unduly delayed, the prognosis is good, and recovery occurs. If no operation is performed death results from subdiaphragmatic abscess, general peritonitis, or even septicæmia and exhaustion.

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SIMULTANEOUS BILATERAL ARTIFICIAL PNEUMOTHORAX.

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With Notes on the Radiograms
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RADIOLOGIST TO THE HOSPITAL.

(WITH ILLUSTRATIVE PLATE.)

IT is well known that double spontaneous pneumothorax is incompatible with life. Fishberg [1] mentions a case which came under his observation, and quotes Hellin, Staehlin, and Gray, who also reported cases. At first sight it would appear that double artificial pneumothorax in the treatment of pulmonary tuberculosis is dangerous and unjustifiable, but in point of fact similar conditions do not obtain in the spontaneous and artificial types of bilateral pneumothorax. In the first place, the collapse in spontaneous pneumothorax is sudden and uncontrolled, and the thoracic viscera have no time to become adapted to the altered conditions, whereas in artificial pneumothorax the collapse is obtained gradually, allowing plenty of time for adaptation in the circulation and ventilation of the lungs. Secondly, in spontaneous pneumothorax an opening is present in the visceral pleura through which organisms from the lung may pass to infect the pleural cavity.

Bilateral artificial pneumothorax was first suggested and carried out in 1913 by Parry Morgan,[2] who also first pointed out the fact that the diseased areas in the lung tend to remain collapsed, while the healthy portions re-expand. This principle of selective collapse in simultaneous bilateral artificial pneumothorax has been studied further by Barlow and Cramer,[3] who have obtained good results in cases of early bilateral pulmonary tuberculosis. Their method is to keep the diseased areas in both lungs collapsed by means of injections at frequent intervals of small quantities of air, and at the same time to allow the unaffected parts to expand. In a previous communication (with F. B. Hobbs [4]) I referred to the difficulties of bilateral selective collapse in comparatively advanced bilateral disease—viz., the presence of pleural adhesions over the diseased areas, and the occurrence of febrile reactions after each refill. Forlanini,[5] Feldman,[6] Burnand,[7] and others have performed consecutive bilateral pneumothorax—i.e., they allow the lung which is first collapsed to expand before collapsing the other lung.

Recent work in France, notably by Rist and Coulaud,[8] has shown that it is possible to have practically complete collapse of both lungs without the onset of dyspnœa or cyanosis, and with considerable improvement in the condition of the patient. Several months ago I had an opportunity of seeing with Dr. Coulaud at the Hôpital Laënnec in Paris a number of these patients, and I was struck by the apparent incongruity between the patients' condition of respiratory and cardiac comfort and the radiographic appearance of practically complete collapse of both lungs. The vital capacity in these cases is much lower than normal, and Rist, Coulaud, and Chabaud [9] offer the explanation that the condition is comparable with the state of affairs present in the lungs of the newly born child—i.e. there is no reserve air, and the child exists on the residual air in the alveoli. Whether this is the true explanation or not, it would appear that bilateral pneumothorax, gradually induced, is not incompatible with life, especially where the diseased area in both lungs is not of great extent.

The following case of simultaneous bilateral pneumothorax appears worthy of record, not only on account of the improvement in the patient's condition, but also because it afforded an opportunity of studying in the same patient the physical signs of two pneumothorax cavities, in one of which were adhesions and a pleural effusion, and in the other a free pleura and no effusion.

A girl, aged 17, was admitted to St. Thomas's Hospital on Oct. 16th, 1926. She had been ill for one month with cough and sputum, pyrexia, night sweats, and progressive loss of weight. She was found to have pulmonary tuberculosis involving the upper half of the right lung, with a small cavity at the apex, and an area of infiltration about the left hilum, spreading into the surrounding lung tissue. Tubercle bacilli were present in the sputum. The radiogram (Fig. I.) shows the extent of the disease in the lungs. For ten days she was kept at rest in bed, and during this time there was an irregular evening temperature varying between 99° F. and 101° F. On Oct. 25th pneumothorax was induced on the right side. Refills were given on the 26th and 28th. A fall of the temperature to normal coincided with the induction of the pneumothorax. A radiogram (Fig. II.) taken at this stage shows a moderate amount of collapse of the right lung with an adhesion at the apex. An interesting feature of this radiogram is that the three lobes of the right lung are shown clearly, with evidence of disease in the upper two. On Nov. 1st pneumothorax was induced on the left side. Whether as a result of this induction or merely as a coincidence, the temperature rose to 102° F. and an effusion into the *right* pleural cavity was observed. The temperature remained high, swinging between 102° F. and 100° F. for three weeks, after which the fluid was withdrawn and replaced by air. A few days after this replacement the temperature became normal. No further effusion or rise of temperature occurred.

During this period, small injections of air, averaging 300 c.cm., were made into the left pleural cavity at intervals of nine days, but they were found not to be sufficient to keep the lung collapsed, and the interval was shortened to four days. On account of the fact that the patient breathed entirely with the left lung, it expanded again, and the pneumothorax had to be reinduced on at least four different occasions. It was then decided to bring about more collapse with larger quantities of air, and this was done, but care was taken not to bring the intrapleural pressure on the left side above zero. In order to keep the lung partially collapsed, it was found that 600–700 c.cm. of air given at weekly intervals were necessary.

The fact that the pleura becomes sclerosed and resistant after a pleural effusion is well illustrated by the rapid rise of the intrapleural pressure from a marked negative to a marked positive pressure after the injection of a small quantity of air, e.g.:—

Jan. 10th, 1927, right side, −14 −7; 250 c.cm. air, +7 +14.

A larger quantity of air injected into the left pleural cavity does not cause a similar rise in the intrapleural pressure, e.g.:—

Jan. 11th, left side, −10 −5; 550 c.cm. air, −10 −1.

At no time did the patient experience respiratory or cardiac distress, although there was a considerable degree of collapse of both lungs. While giving a refill on the left side, the onset of a slight sensation of tightness of the chest was taken as an indication that

DESCRIPTIONS OF ILLUSTRATIONS.

(*See Plate.*)

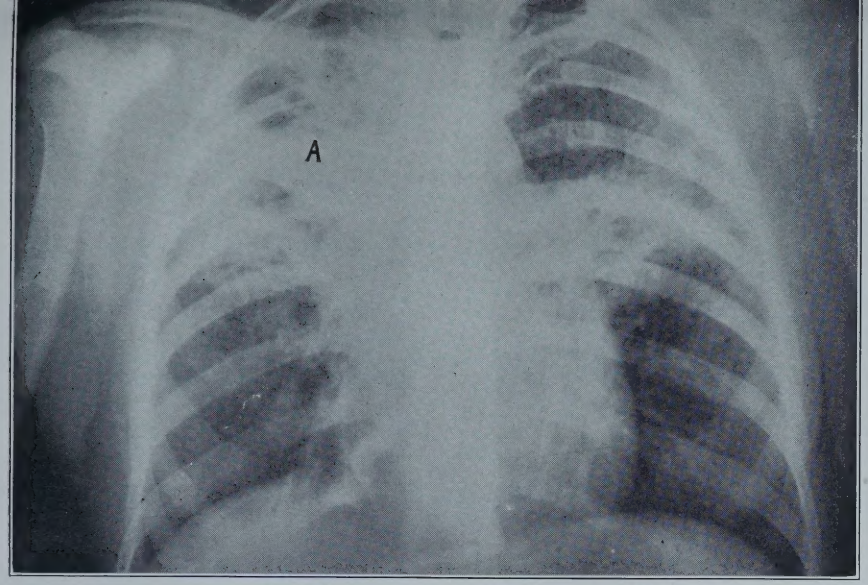
FIG. I. shows the appearances before treatment. There is well-marked fibroid disease involving the upper half of the right lung with cavitation of the apex (A). The left lung shows hilum disease extending outwards almost to the pleura.

FIG. II. shows demarcation of the three lobes after collapse of the right lung. Disease with cavitation is seen in the upper two lobes (1, 2), whereas the lower lobe (3) is clear. The left side is unaltered.

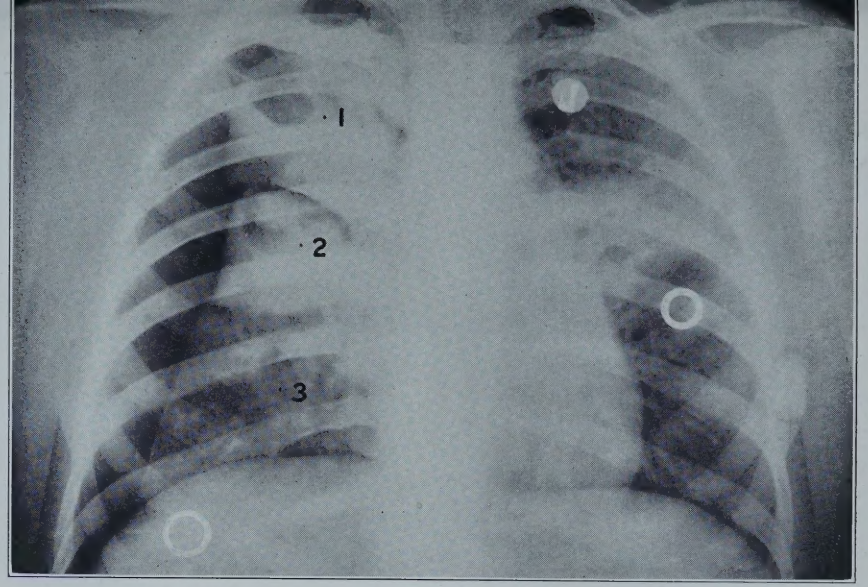
FIG. III. after partial collapse of both lungs, shows on the right side adhesions to the chest wall and a small collection of fluid at the base. On the left side there is a marked diminution of the area of infiltration as compared with Fig. I., the outline of the lung being well seen and the apex lying at the level of the fourth rib behind (A). It also illustrates the mode of collapse when no adhesions are present—i.e., the apex is displaced downwards.

FIG. IV. shows practically the same appearance as Fig. III., except that the left lung has been allowed to expand a little. It now shows much sharper definition of the area of infiltration suggesting early calcification.

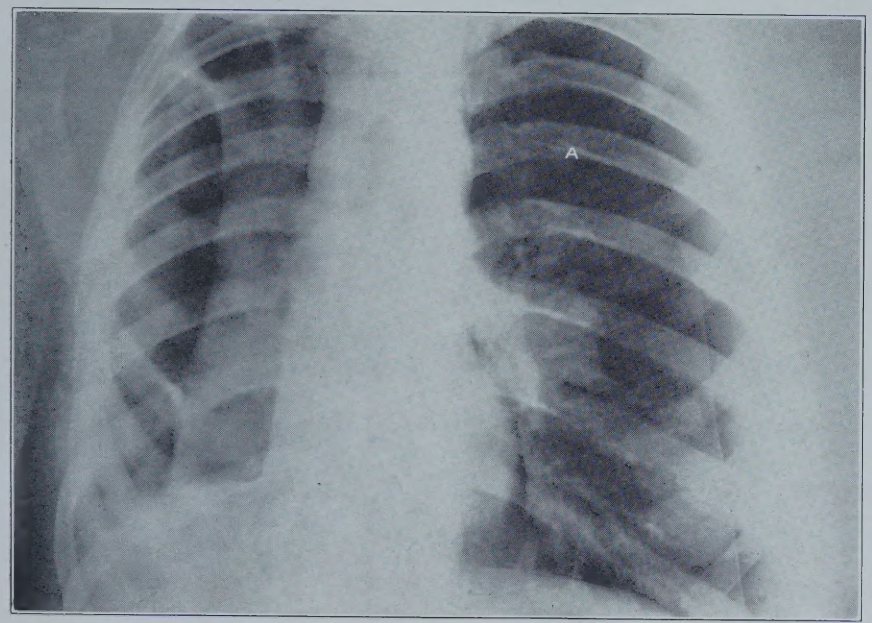
I.



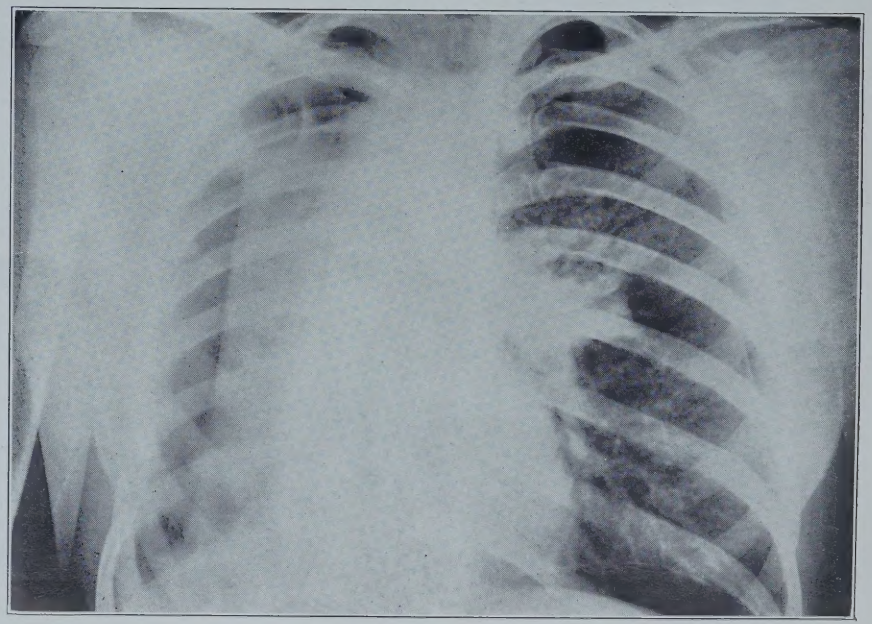
II.



III.



IV.



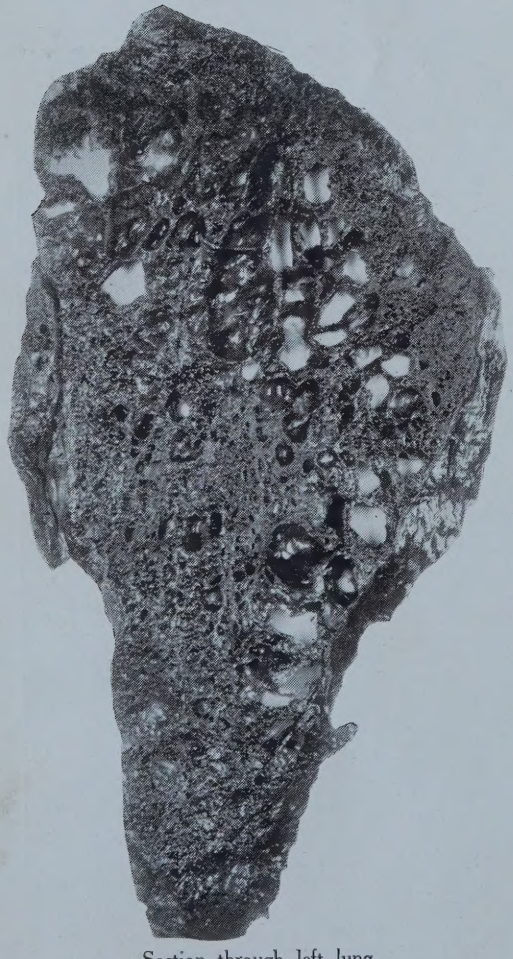
DR. A. I. G. McLAUGHLIN AND DR. G. FILDES: SIMULTANEOUS BILATERAL ARTIFICIAL PNEUMOTHORAX.

(Descriptions of Illustrations are given on the opposite page.)

I.

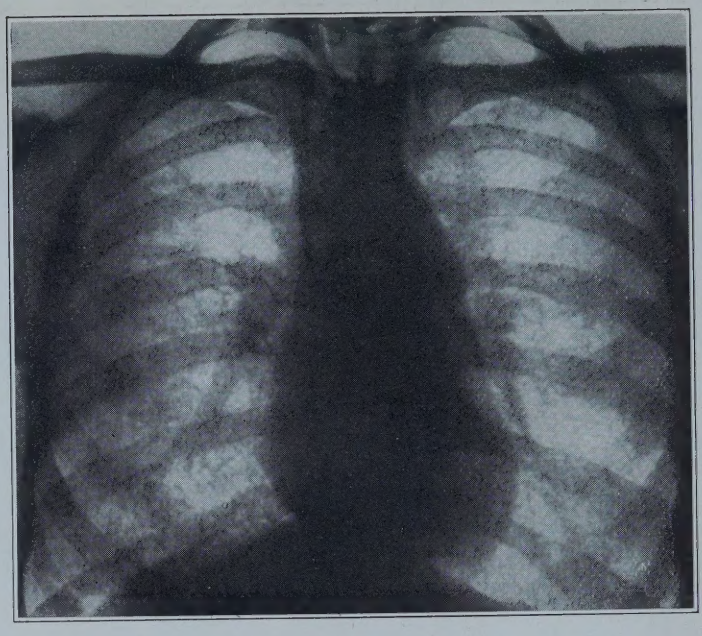
Section through right lung.

II.



Section through left lung.

III.



Radiograph taken Feb. 4th, 1926, when practically no physical signs were present.

IV.

Radiograph of left lung taken 6 hours after death.

enough air had been injected. This symptom usually passed off within five minutes. I did not aim at securing the practically complete collapse obtained by Rist and Coulaud, but the degree of collapse obtained was much more than the selective collapse advocated by Barlow and Cramer.

An interesting point is that no febrile reactions occurred, with the exception that the onset of pleural effusion on the right side was attended with pyrexia. It appears to be a significant fact that the effusion occurred on the right side where there was a pleural adhesion, and not on the left side where there was a free pleura.

In April, 1927, the patient was able to get out of bed for four hours during the day and to take a fair amount of exercise. The degree of collapse in both lungs is seen in the radiograms (Figs. III. and IV.). There is no cyanosis or dyspnœa and very little cough; the temperature is normal; the sputum is scanty and does not contain tubercle bacilli. During one period the left lung was compressed to a little more than half its full volume. It was noticed that during this time the weight remained stationary. As soon as the lung was allowed to expand a little the weight began to increase.*

The interval for refills has now been increased to 14 days for the left side and 28 days for the right side.

NOTE ON THE PHYSICAL SIGNS.

Percussion.—The percussion note was uniformly hyperresonant over the whole lung area on both sides, with the exception of a small area at the right base where the note was impaired owing to the thickened pleura resulting from the pleural effusion. The area of cardiac dullness was diminished considerably.

Breath Sounds.—On auscultation the breath sounds were absent over the whole of the right lung, but over the left lung they could be heard invariably, even when a considerable degree of collapse of the lung existed. This would seem to show that absence of the breath sounds is not a constant concomitant of pneumothorax. Indeed, it is a comparatively common occurrence, in the out-patient department, to see cases of partial spontaneous pneumothorax in which the character of the breath sounds vary little, if any, from the normal.

Coin or Bell Sound.—The coin sound developed on the right side after the absorption of the pleural effusion, becoming more marked as the pleural membrane became more sclerosed. On the left side, the coin sound on numerous examinations was never elicited. This fact led me to investigate more closely the incidence of the coin sound in the other cases of artificial and spontaneous pneumothorax under my care, and I have come to the following conclusions: (1) The coin sound is elicited in its most marked and characteristic form when the pleura has been thickened or sclerosed by the onset and subsequent absorption of a pleural effusion, either serous or purulent. (2) The main condition necessary for the production of the coin sound is not, as Fishberg[10] maintains, the presence of fluid, but the hardening and increased elasticity of the pleural membrane so that it resembles a sounding-board, producing forced vibrations. (3) The same explanation holds for the production of the coin sound over cavities in the lung—viz., that there must be an air space enclosed by thick resistant walls to amplify the vibrations of the metal. (4) The coin sound is rarely heard over a pneumothorax cavity where a pleural effusion has not occurred. If it is elicited over such a cavity I venture to suggest that this is a case of pure resonance, as distinct from forced vibration, and that the important feature is therefore an accidental correspondence between the wave-length and the dimensions of the cavity. (5) The intensity of the coin sound can be increased a little by raising the pressure in a pneumothorax cavity from a negative to a positive pressure, but the tension in the cavity is not, as Bendove[11] suggests, the primary factor.

Subfascial Emphysema.—On one occasion, for five days after a refill on the left side, sharp crackling crepitations, synchronous with the systole and diastole of the heart beat, were heard over the cardiac area. These sounds were due apparently to subfascial emphysema, which is a rare occurrence in artificial pneumothorax.

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* *September, 1927.*—Progress has been maintained. The weight is increasing steadily, and all symptoms such as cough, sputum, and pyrexia have disappeared. The patient, who was discharged from the hospital in May, is now living at home, and is able to lead a comparatively normal life.

A CASE OF FIBROCYSTIC DISEASE OF THE LUNG.

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AND
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(WITH ILLUSTRATIVE PLATE.)

THE literature contains descriptions of several cases of cystic degeneration, both congenital and that following acute fevers in very young children. Oudendal,[1] who has recently examined the literature thoroughly and has published exact pathological records of cases which have come under his notice, describes only one which resembles our case given below histologically. In Oudendal's case only a limited area in the right lower lobe was affected. Chronic pulmonary tuberculosis was associated with the cystic condition. He gives the name of "fibrocystadenoma pulmonare" to the pathological condition, but his description and his plates suggest a chronic inflammatory process rather than non-malignant tumour formation. In one case observed by W. A. Young (not yet reported) localised areas of fibrocystic change were found in both lungs similar to the case above reported. The cause of death in this case was tuberculous pericarditis. No trace of tuberculous infection was found in the lungs.

Our Case Described.

The following is the report of our case, which we believe to be of a nature previously undescribed:—

A woman, aged 32, attended the out-patient department, Royal Chest Hospital, on Feb. 12th, 1926, complaining of cough and dyspnœa. She had been in her usual health till October, 1925, when cough began. There was no expectoration, but cough increased and compelled her to give up her household duties towards the end of January, 1926. Shortness of breath became marked in February, and there was also complaint of left submammary pain. Past health had been satisfactory, except for "pleurisy" on the left side eight years previously. There had been steady loss of weight. In 1918 the weight was 12 st. 10 lb., in 1923, 9 st. 4 lb., and on Feb. 12th, 1926, 7 st. 12 lb. in ordinary clothes. She had borne two children, the youngest being 2½ years old. There was no family history of tuberculosis.

Examination showed a spare, slightly built woman, of height above the average. There was slight cyanosis, evident dyspnœa on slight exertion, and some clubbing of the fingers. The expansion of the chest was very poor;

[1] Oudendal, A. J. E.: Ueber Epithelproliferationen und cysten in den Lungen, Virchow Archiv f. Path. Anat., 1923, ccxliv., 59–83

there seemed to be some retraction in the right supraclavicular region. The vocal fremitus and vocal resonance were equal all over, the percussion note was fairly good, the air entry was weak. Bronchitic signs were scanty, but rather more on the right side than on the left. The heart seemed normal in position, and the sounds were natural. The whole picture of cyanosis and dyspnœa, in excess of the findings on physical examination, suggested the possibility of some obstructive tumour in the mediastinum.

Dr. Kerley reports thus on X ray examination on Feb. 4th, 1926 :—

Heart normal. Diaphragmatic movements restricted on both sides. Lungs: Both lungs are diffusely infiltrated, with the exception of the apices. There is a peculiar meshwork appearance between the separate foci of infiltration. The condition is very atypical of tuberculosis, and suggests rather diffuse carcinomatous metastases. Trachea is displaced to the right and appears compressed. Thickened interlobar pleura on the right side.

The patient was admitted to hospital on March 12th, 1926. While she was at rest in bed the temperature varied from 97·6° to 99·4° F. for the first four weeks, the evening temperature being about 99°. During this period the pulse ranged from 80 to 130, and the respirations from 20 to 34. She was blue and distressed even while at rest in bed. The cough was troublesome, but sputum was scanty, though râles were heard at both apices. There was frequent complaint of pain in the left submammary region, and some hyperæsthesia was found in the seventh, eighth, and ninth spaces. The urine was normal.

On the supposition that there was a neoplasm, investigations were made to identify a primary growth. Laryngoscopic examination and radiological examination of the intestinal tract showed no abnormality. Pelvic examination showed vagina and uterus to be normal. The sputum contained pus cells, but no cells suggestive of new growth were found. There were no red blood cells and examination for tubercle bacilli was negative on six occasions. The Wassermann reaction was negative.

Progress.—During the fifth week the temperature was normal, the respiration-rate fell somewhat, and there seemed to be a definite improvement. The colour improved though the cough was still troublesome. The patient began to get up. Râles were noted at both apices as before, and in the back on the right side. The percussion note seemed impaired over the right side, and the air entry rather weaker. Up to the fifth week the patient had lost 1 lb. in weight. The improvement was not maintained, and dyspnœa forced her back to bed. Between the sixth and the tenth week the temperature was rising to 99·6°, the pulse to 140, and the respiration-rate occasionally to 35 or 40. During this period there was marked loss of flesh and strength, and the patient was scarcely able to get up at all. The trachea was slightly displaced to the right, some dullness was found in the first and second spaces on the right of the sternum. Bronchitic signs were heard in the lungs, first on the right side, later on both sides. The patient died on April 28th, 1926.

Post-mortem examination (28/5/26).

External appearances: Moderately well covered; clubbing of fingers and toes of moderate degree; very marked post-mortem discoloration.

On section: The right lung filled the right chest, the left lung showed partial collapse. Dense adhesions over the anterior margin of right lung below apex, and chiefly attached to an accessory lobe occupying the antero-inferior angle of the right upper lobe; numerous interlobar adhesions between accessory lobe and upper and middle lobes; some recent clear fibrinous exudate over the outer surface of both lungs, with a few cheesy flakes over the left lower lobe; no adhesions over the left lung; no excess of fluid in either pleural sac. Both lungs showed irregularly nodular surfaces; the nodules varied in size from that of a small pea to the largest, on the diaphragmatic surface of the right lung, which measured approximately 1¼ by 1⅞ inches; they were not spread along the thin margins of the lung like emphysematous bullæ, but distributed generally over the surface; when cut into they appeared to contain gas under pressure (Figs. I. and II.). Their outer walls varied with their size, the largest showing fairly dense outer walls. Their lining membranes were smooth and of a pale grey colour. No cysts were found to contain any exudate. A few showed partial loculation or thin bands running from wall to wall. The condition was generalised, and lung tissue of normal appearance was only found in the small accessory lobe in the right lung and in a few small areas beneath the pleura in the left lower lobe; the cysts varied in size from the largest mentioned to pin-head size. There appeared to be an increase of fibrous tissue in the septa between the cysts. The glands in the hila showed some acute congestion, but no appearances of chronic infection. Some muco-pus was found in the main bronchi and their largest branches. The tracheal mucosa was not congested. Slight general enlargement of mediastinal glands. The remaining organs were normal.

Histological Appearances.

1. *Lungs.*—The pleura shows some general thickening. The interlobar septa are considerably increased in thickness, and appear as large fibrous areas of irregular shape. The lung tissue proper consists of small isolated areas varying considerably in their appearance from normal alveolar structure to catarrhal and early pneumonic areas. Some collapse and changes of an emphysematous nature are present. The cysts vary very much in size, in the character of their epithelial linings, and in their association with surrounding tissues. From the simple flattened endothelial lining of the emphysematous bulla there are all gradations through the simple cuboidal epithelium of the small contracted alveoli, which are progressively lined with cuboidal, low columnar, and transitional columnar epithelium of the larger cysts. With few exceptions there was no intracystic exudate and no desquamation of the lining membranes. This is in marked contrast to the bronchi and bronchioles, which show evidence of both chronic and recent subacute catarrhal changes. In both bronchi and bronchioles there are numerous areas of "epidermisation," œdema, congestion, and desquamation of epithelium, hyperplasia, and early cystic degeneration of the submucous bronchial glands, and purulent exudation into their lumina. Several cysts show variation in their lining membrane from flattened endothelium in one portion of their wall to cuboidal and transitional columnar in another portion. In many cases the walls are smooth and the contour comparatively regular. In those with a more differentiated epithelium, irregularities of outline and downgrowths of epithelium with irregular "pouching" of the walls, almost amounting to an adenomatous condition in some areas, are not uncommon. The stroma surrounding the cysts is, in some areas, fibrous tissue. In others there is a moderately cellular "granulation tissue" with young fibroblasts, small mononuclears, endothelioid cells, large mononuclears containing pigment, a few eosinophils, and an occasional plasma cell. In a few cases the cysts are immediately contiguous to simple lung tissue. The "granulation tissue" is almost absent from some areas of the lung where more advanced fibrosis is present, but is present in considerable amount in other areas. The vascularity of the "granulation tissue" is of moderate to marked degree. No thromboses were found, but numerous arterioles show some degree of obliterative endarteritis. Careful search of the granulation tissue areas showed a few small "giant cells," not of tuberculous type, but always associated with heavy deposits of carbon pigment and probably of the "foreign-body giant-cell" type. No tubercle bacilli were found in several sections examined, and sections stained to show other organisms did not reveal any in cystic or alveolar exudates. A few Gram-negative bacilli and diplococci were found after prolonged search in the exudate of the bronchi. No unstriped muscle-fibres were found in any cyst wall, and elastic tissue was scanty or absent.

2. *Thymus.*—An area of lymphatic tissue, which was considered originally to be a lymphatic gland, but which, on section, showed remnants of thymus structure, was found densely adherent to the anterior margin of the right lung. It measured roughly ¾ by ½ by ½ inch, and was buried in dense fibrous tissue.

3. *Glands in the hilum of the right lung* show some endothelial and general lymphoid hyperplasia with congestion, probably terminal in origin.

Discussion.

The age of our patient precludes the possibility of a congenital origin of generalised fibrocystic disease. Tubercle has been excluded. Syphilis is a possible cause, and is suggested by the amount of obliterative endarteritis present. The Wassermann reaction was tested only once with negative result, and the Sigma reaction and a Wassermann reaction after a provocative injection of novarsenobillon were not tried. No evidence of mycotic or parasitic infection of the lung was found, and the condition was quite unlike that produced by chronic infection with catarrhal organisms. The condition appears to be analogous to fibrocystic disease of the breast, and to be due to toxic action (rather than direct infection of the lung), producing gradually increasing fibrosis, loss of elastic tissue, "occlusion-cyst" formation with irregular epithelial hyperplasia, and metaplasia and eventual loss of function. The inflammatory changes are considered to be of a secondary nature and of comparatively recent origin. The presence of gas under pressure in some of the cysts possibly represents excretion of gases from the blood.

The X ray appearances of this unique case bear a remarkable resemblance to those of so-called miliary carcinoma of the lung. On close examination of the skiagram the prominent features are: (*a*) An extensive fine network of striations, involving the whole of both lungs with the exception of the apices (Fig. III.). The striations are finer than the normal lung markings, coarser than the markings of chronic stasis, and ramify in a haphazard fashion not seen in either of these conditions. (*b*) Scattered about the striated areas are small dark spots, not homogeneously opaque, and having no definite contour. In contrast to the clear cystic areas immediately about them the spots appeared relatively opaque. From the post-mortem findings there is no doubt that they correspond to the small areas of lung tissue left.

Miliary tuberculosis was at once excluded, as the characteristic, or the typical, clear-cut millet seed opacities were absent and the apices were free. So-called miliary carcinoma, which is occasionally seen secondary to carcinoma of the stomach, gives a similar picture. The only point which might help to differentiate the two conditions is that in carcinoma the striations are somewhat finer and the spots more regular in outline and more opaque. The presence of a rare disease of the lungs gave rise to the erroneous diagnosis of a mediastinal neoplasm. The condition dated from December, 1925, or at latest from February, 1926, when she came under observation. The duration was certainly four months, and more probably six. A high degree of cyanosis and dyspnœa, with physical signs of an indefinite character, led to a search for a cause of deficient air intake.

The cause was evidently intrinsic in the lung substance. Steady loss of weight of long standing suggested neoplasm, and this suggestion received support from radiography. The very indefinite physical signs left the diagnosis doubtful; the presence of parasternal dullness, weaker air entry on the right side, and displacement of the trachea which appeared later, suggested the possibility of partial obstruction of the right bronchus. This displacement may be explained by the pleurisy in the region of the upper and middle lobes, or by an unequal expansion of the two lungs, which caused a displacement of the mediastinum to the right. This is remarked upon post mortem, and is borne out by radiological findings.

Clinical and Laboratory Notes.

A CASE OF FAMILIAL DISSEMINATED SCLEROSIS.

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CASES of familial disseminated sclerosis are of extreme rarity; in fact, it has been stated that the total number reported can be counted on the fingers. J. R. Reynolds [1] records two cases, one being that of a family in which three members were affected. André Léri [2] had a case in which two daughters and the mother were affected, the mother having contracted the disease when over 50 years of age. A few less authentic cases have been recorded in a paper by Donald Frazer.[3] Many cases of familial nervous degenerations, such as Friedreich's ataxia, have been shown as "familial disseminated sclerosis," but careful investigation of the family history should prevent confusion. The history in the case recorded here is as follows:—

The parents are both alive and well. One married son, aged 40, is alive and well. One living daughter suffers from disseminated sclerosis, and one son and one daughter have died from the disease. The maternal grandfather died of "heart disease," aged 49; the grandmother died aged 62. The paternal grandfather died aged 80, and the grandmother died aged 30 (cause unknown).

History of the Dead Son (supplied by courtesy of the Director-General of Military Services, Ministry of Pensions).—Died at the age of 32; married; one child alive and well. He was wounded in the left leg during the war. In 1921 he developed "neurasthenia," and complained of seeing double. In 1922 he complained of weakness of the legs and shakiness of the hands. On examination it was found that his right grip was greater than the left; he had nystagmus and exaggerated knee-jerks. His right ankle-jerk was greater than the left, and his right plantar reflex was extensor. The condition was diagnosed as disseminated sclerosis.

In August, 1923, both plantar reflexes were extensor and the abdominal reflexes were sluggish; the right reflexes were still brisker than the left. Both legs were spastic. The left pupil was larger than the right, although both reacted to light and accommodation. He had nystagmus and strabismus, spastic gait, ataxia, and slow speech. He fell with his eyes closed, and had great incoördination and tremors of the hands. In April, 1925, he was bedridden and had incontinence of urine. He squinted, and his speech was unintelligible. His reflexes were similar to those found in 1923. His left pupil was still larger than the right, and both reacted. He died in 1926, and was certified as having died of disseminated sclerosis.

[1] Brain, 1904, xxvii., 163.
[2] Rev. Neurol., 1924, pt. 1, xxxi., 788.
[3] Glasgow Med. Jour., 1880, xiii., 199.

History of the Dead Daughter (kindly given by Dr. Ashley Steel).—Died aged 35; single. The time of the onset of the disease is unknown, but on April 3rd, 1922, the patient's knee-jerks were exaggerated, and there was a loss of power in the muscles of her leg, most marked in the peronei; she had no ankle-clonus nor extensor plantar reflex. By July 4th, 1923, she had developed intention-tremor and ataxia of the hands and feet. She showed mental degeneration. On April 20th, 1924, her left pupil was larger than the right, but reacted to light and accommodation. No nystagmus was present; the discs were pale, but there was no atrophy. Her arm-grips were weak, but she had no intention-tremor. All arm and leg reflexes were exaggerated. Her abdominal reflexes were absent and her plantars were extensor. She complained of posterior root-pains.

On Jan. 8th, 1925, she had diplopia and her condition remained unchanged until April 2nd, when she had acute pains of left renal distribution. Radiogram and urine were then normal, but on July 2nd she had a few pus cells in her urine; there were no casts. On Oct. 8th her pupils reacted sluggishly and her reflexes were exaggerated. On the sensory side she had definite loss to pain, heat, cold, and touch, below the first thoracic nerve. On Jan. 7th, 1926, she had anæsthesia on the left side up to the seventh cervical nerve. Her feet were œdematous and she had incipient heart failure. Lumbar puncture showed diminished pressure but clear fluid. The Wassermann reaction was negative. Lange's test, albumin, sugar, and cells were normal. Towards the last she suffered from flexor spasms and became gradually weaker. She died on March 20th, 1926.

History of the Living Daughter.—Her age is 22. She was first seen on Jan. 25th, 1922, and stated that she fell downstairs three weeks ago, but did not hurt herself. The next morning she noticed that she was numb in the left side and had difficulty in using her left hand. She improved for a fortnight and then relapsed, her right hand also becoming numb. On examination she had slight myopia and nystagmus on looking laterally. The cranial nerves were normal, except for slight weakness of the left face and slight deviation of the tongue to the left. There was no sensory change except slight loss of the sense of position of the left hand, with some astereognosis. The left abdominal reflexes could not be definitely obtained. The right knee-jerk was brisker than the left, and the left plantar reflex gave a doubtful extensor response. The right plantar and other reflexes were normal. A diagnosis of disseminated sclerosis was made.

Five months later she developed pain in the left side, and her left hand and arm became weaker and painful. On May 16th, 1923, she had a definite relapse, and her left arm and leg became much weaker. Her vision was now dim. Five months afterwards again she had more pain in her left arm. On Dec. 11th, 1924, she developed petit mal. She also complained of girdle-pains and of paræsthesia over the fifth nerve, the corneal reflex being normal. Her condition remained about the same until April 19th, 1925, when it was found that the right pupil was larger than the left. She had crossed anæsthesia, slight left facial weakness, and her left hand was still weak. She had incoördination of her left limbs and a positive Romberg's sign. On Feb. 18th, 1926, she had slight nystagmus in all directions, most marked to the left, with slight left facial weakness and diminished sensibility to cotton-wool and pin-prick over the left side of the face and body. The left limbs were weaker, more spastic, and less well coördinated than the right.

The plantar reflexes were extensor; the abdominal reflexes were not obtained. Although Romberg's sign was negative, she tended to fall to the left, and was not steady. On August 18th her condition was the same except that there was an area of hyperæsthesia over the third thoracic nerve-root distribution. No change of importance was noted when she was examined on May 1st, 1927.

It is interesting that this disease should have picked out three members of a family in this manner, and it is very remarkable that two of those affected should complain of root-pains, which are uncommon in disseminated sclerosis.

I should like to express my thanks to Dr. Ashley Steel and the Director-General of Medical Services, Ministry of Pensions, for the records which they supplied; and to Dr. C. P. Symonds for his encouragement and permission to publish details of the case of the living daughter. Dr. R. N. Ironside and Dr. M. Critchley have kindly assisted with references.

A CASE OF
PERSISTENT AURICULAR FIBRILLATION
IN A CHILD OF SIX.

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AND
H. B. RUSSELL, M.D., M.R.C.P. LOND.,
CHIEF ASSISTANT, ELECTROCARDIOGRAPHIC DEPARTMENT.

THE following case came under our observation.

Clinical History.—The patient, aged 6, is the only living child; his brother, one year older, died of broncho-pneumonia in 1926. His father and mother are well and the boy has had no previous illness which has given cause for anxiety.

About the beginning of March he complained of stomach-ache and seemed feverish; the onset was fairly abrupt. His only other symptom was headache, but a few days later he began to cough, and with each bout became breathless and blue in the face. There was no nasal discharge nor considerably; his general condition has remained very good and the cyanosis only appears with exertion. During his stay in hospital, in spite of a restricted diet, he has become very fat. From a throat swab taken the day after admission a bacillus was cultured morphologically identical with the Klebs-Löffler bacillus. Three further swabs taken in the course of the next two weeks all proved negative. No signs of a faucial or pharyngeal membrane were seen, nor were there any symptoms of laryngitis. No evidence of peripheral neuritis was found.

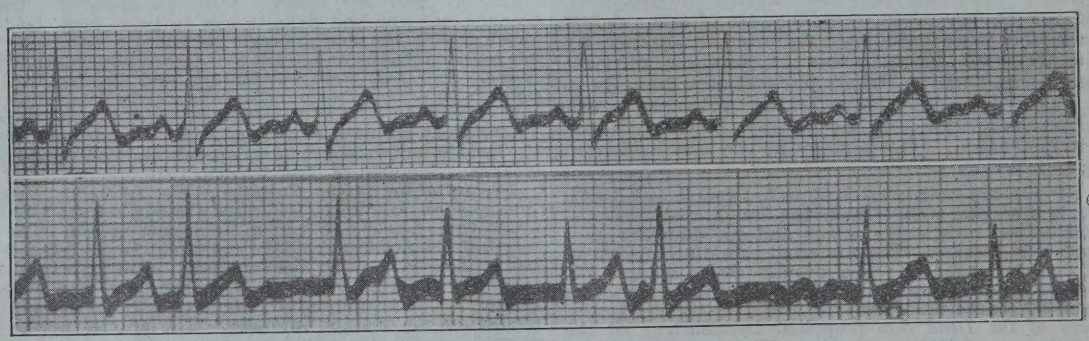
Treatment.—Drugs were administered as follows: (1) Digitalis. ℥xv. of the tincture were given in the first 24 hours and gr. 1/200 of Nativelle digitalin daily for the next 8 days. (2) Antidiphtheritic serum, 5000 units, was injected on the second day. (3) Sodium luminal was given (gr. 1 to 1½ daily) after April 15th until the appearance of a diffuse erythematous rash necessitated its withdrawal. The drug was given to reduce a restlessness due, not to a morbid excitement, but to a natural boyish energy. (4) Quinidine was given in graduated doses during the fortnight May 6th to 19th, beginning with gr. 1½ daily and reaching a maximum of gr. 24 in the day. In all, gr. 80 were given.

Throughout no therapeutic effect could be noted.

Comment.

Of the two electrocardiographic tracings reproduced the first (A) shows a normal complex with some sinus arrhythmia; the second (B), which was taken on the same day (March 31st, 1927), is typical of auricular fibrillation. All subsequent tracings (taken frequently throughout the period of active treatment) have shown the same condition.

The ætiology in this case seems very doubtful; the culture of a bacillus morphologically identical with the Klebs-Löffler is the only evidence suggesting a diphtheritic toxæmia as the cause. J. Parkinson [1] has recorded a case of combined heart-block and auricular fibrillation developing in a man of 22 three weeks after the onset of a pharyngeal diphtheria; joint pains and a cervical adenitis accompanied the onset of the condition. Dr. Foord Caiger informs us that he has not observed any definite case of auricular fibrillation in the course of his long experience of diphtheria in the Metropolitan Asylums Board Service; he points out also that serious heart lesions



Two electrocardiograms taken on March 31st. The upper one (A) shows a normal complex with some sinus arrhythmia. The lower (B) is typical of auricular fibrillation.

complaint of sore-throat. He continued at school till March 29th, when he was admitted to hospital.

When first examined he was seen to be cyanosed, even when lying quite still, but not particularly distressed or dyspnœic. His pulse was completely irregular and of very variable pressure, and there was a good deal of cardiac dilatation, a diffuse apex beat being felt in the sixth intercostal space, one inch outside the nipple line. During the first 48 hours of observation the heart showed three distinct rhythms: (*a*) complete irregularity, like that of an untreated auricular fibrillation; (*b*) regular tachycardia (rate 160 to 170 per minute); (*c*) regular tachycardia, broken by an extrasystole occurring every fifth or sixth beat (rate 120 to 130). This last rhythm was maintained for several hours consecutively, and while it continued each pulsation reached the radial pulse—i.e., the apical and radial rhythms corresponded.

The temperature was slightly raised for the first few days (99° to 99·5° F.). The liver and spleen were not enlarged, nor was there any œdema. The tonsils were moderately swollen and very red.

Since the first few days rhythm (*a*) has been constant, but the number of beats per minute has fallen very con-

in diphtheria are always associated with a severe faucial infection which could scarcely have escaped recognition had it occurred in the case of which we write. G. A. Sutherland and C. F. Coombs [2] have recorded the death of a boy, aged 5, from auricular fibrillation and heart failure, within six days of the onset of a first attack of rheumatism. The heart post mortem showed an extensive myocardial degeneration.

It seems clear that in the present case some degree of myocarditis was present, occasioning extrasystoles, and probably auricular flutter, and ultimately leading to auricular fibrillation. The fact that the boy's previous health was good would seem to indicate that the condition arose as the result of either a severe strain—of which there is no history—or, more probably, from the selective action of some poison. One of us (D. G. L.) has observed on a previous

[1] Heart, 1915–17, vi., 13. [2] Ibid., 1913–14, v., 15.

occasion the rhythm due to the regular occurrence of extrasystoles develop in a girl of 8 years of age who had been for some weeks in bed, under treatment for rheumatic endocarditis (mitral disease). She was not receiving digitalis at the time and had been progressing very satisfactorily. The arrhythmia lasted for 24 hours, during which time she showed signs of incipient heart failure—nausea, vomiting, pulmonary congestion, enlargement of liver and spleen—which disappeared when the normal rhythm returned. The boy, whose case is described above, gave no history of rheumatism and showed no evidence of infection except from the appearance of his tonsils.

Our thanks are due to Dr. Reginald Jewesbury, under whose care the boy was admitted, for permission to publish an account of his case.

NOTE ON A NEW METHOD OF TREATING CARCINOMA OF THE CHEEK.

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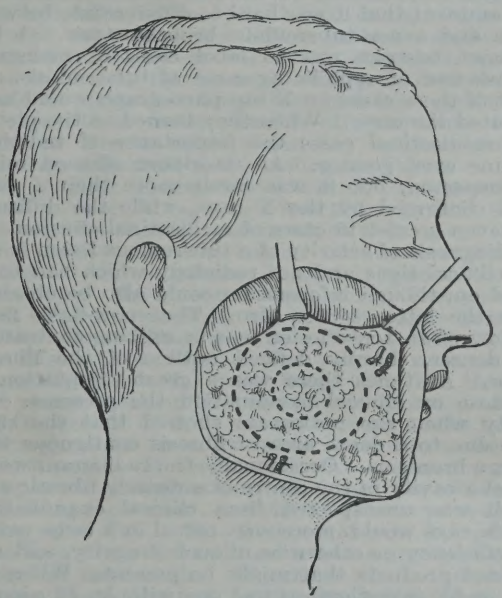
SURGICAL treatment of carcinoma of the cheek presents considerable difficulties. The condition is seldom seen in its early stages, and generally by the time the patient comes under observation the growth has involved a large area of the cheek. Let us consider in the first place the treatment of a tumour occupying a central position which has not yet involved the angle of the mouth, and has so far not

FIG. 1.



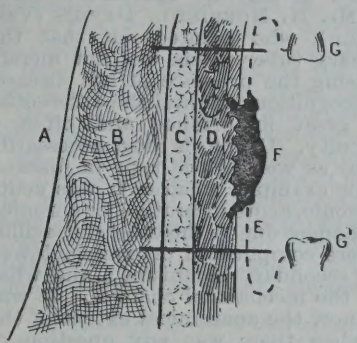
The small circle indicates position of tumour; the large circle shows extent of tissue removed. The facial artery and vein are excised between ligatures. (Semi-diagrammatic.)

spread to the upper or lower alveolus. In such a case excision with the knife may be practised, but I believe that all cancers affecting the mouth and pharynx are preferably treated by diathermy. Diathermy of the cheek presents special difficulties. It is quite easy, by employing the diathermy-excision method, to keep well wide of the margin of the growth, but it is extremely difficult to destroy the deep portions of the tumour without jeopardising the skin of the cheek. It must be remembered that the cheek increases somewhat rapidly in thickness as it passes backwards from the angle of the mouth to the anterior border of the ascending ramus of the jaw, and that if diathermy be employed destruction of the skin is more likely to occur the nearer we approach the angle of the mouth. I have treated a number of cases by diathermy but the results have been unsatisfactory, no case having remained without recurrence for more than two years.

Recently I have devised a technique which I consider will be followed by better results.

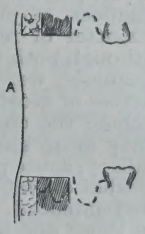
After the usual preliminaries, which include removal of all septic teeth, the following method is adopted. Under chloroform anæsthesia an incision is made through the skin. It commences just below the attachment of the auricle and runs down the posterior border of the ascending ramus of the jaw as far as its angle. It is then carried forwards

FIG. 2.



The portion between the thick transverse lines is removed at operation. A = Skin. B = Gauze packing. C = Fat. D = Muscle. E = Mucous membrane. F = Tumour. G = Teeth. (Diagrammatic.)

FIG. 3.



Condition of tissues after operation is completed. A = Skin.

along the lower margin of the jaw as far as the symphysis. In making the posterior part of the incision it is important to avoid wounding the parotid gland which lies near the surface. The skin, and the skin only, is reflected in an upward direction well beyond what are considered to be the limits of the growth. The facial artery and vein are now exposed and ligatured as they cross the lower margin of the mandible. These structures are next dissected upwards and from an inch to one and a half inches of both artery and vein are resected. A broad strip of ribbon gauze is packed underneath the skin flap so that it is well removed from the underlying tissues of the cheek. The patient's mouth is widely opened with a gag, and from the inside the growth, together with an adequate margin of healthy tissue, is removed with the diathermy knife or saw. The gauze packing, having served the purpose of protecting the skin flap from the action of the diathermy terminal, is now removed. It will be observed that there is a large hole in the cheek caused by the removal of the tumour. The skin flap is turned down and stitched in position. There has been no tendency to sloughing of the skin in the two cases in which I have performed this operation.

In cases where the periosteum of the upper or lower jaws is affected, further diathermy will be necessary before replacing the flap, and this can be best carried out through the opening in the cheek with the button applicator. Where the disease extends backwards and involves the mucous membrane over the ascending ramus, diathermy must be freely applied in this neighbourhood. In some cases it may be deemed advisable to resect a portion of the ascending ramus itself. In cases where the growth approaches the angle of the mouth it may be necessary to remove by ordinary cutting methods a part of the whole thickness of the cheek including the skin, the posterior portion of the tumour being treated by diathermy. At the end of the operation the parts are brought together by sutures. In carcinoma of the cheek the glands are seldom affected until late in the disease. Where they are involved, removal must be undertaken by the ordinary method of dissection.

The *after-treatment* of these cases is rather important, as there is, of course, a tendency to contraction and limitation in opening the mouth. It is, therefore, necessary as soon as the skin wound is soundly healed periodically to employ means which will cause stretching of the cheek. The patient may wear a prop during part of the day between the teeth or gums, and it may be desirable forcibly to open the mouth on one or more occasions under gas anæsthesia.

BRITISH MEDICAL ASSOCIATION.

ANNUAL MEETING AT EDINBURGH.

(*Concluded from p. 663.*)

SECTION OF TUBERCULOSIS.

THIS Section, which met on Friday, July 22nd, under the presidency of Dr. S. VERE PEARSON (Mundesley), discussed three large topics.

Radiology and Diagnosis of Intrathoracic Tuberculosis.

The opening paper giving the specialist's viewpoint was read by Mr. H. MORRISTON DAVIES (Vale of Clwyd Sanatorium), who pointed out that the diagnosis of pulmonary tuberculosis was not merely a matter of recognising the presence of the disease, although both the recognition of it and the differential diagnosis were of great importance and often a matter of great difficulty. Diagnosis must necessarily include the character as well as the type of disease. They must know, for example, whether it was acute miliary, acute pneumonic, acute ulcerative, or chronic; to what extent the changes due to the tubercle bacillus predominated, or were complicated or overshadowed by those due to the secondary organisms; and what part was played by the mechanical changes. It was also imperative to know the anatomical extent of the lesions, especially when there was any question of surgical intervention.

The symptoms and signs of the disease varied in every case, some cases showing but one symptom, such as lassitude or hæmorrhage, and no sign other than harsh breath sounds. Symptoms such as cough and sputum might be absent for years from the clinical picture, while pyrexia might be an early or a late manifestation. Physical signs might be difficult both to ascertain and to interpret. Some patients seemed incapable of using their chest or diaphragm so as to make even the normal breath sounds audible through the stethoscope, other difficulties being that there was practically no symptom and no sign that could not be produced at one time or another by long intrathoracic disease, and that breath sounds could be heard through even a considerable layer of fluid. It was important, therefore, in all cases to check, control, and correct the clinical findings by the radiological ones. Although clinical examination was the most important of all methods of investigation, there was much that could only be revealed by radiology, more especially in cases in which the pleural cavity was the seat of the lesion or in which it was involved secondarily to the disease in the lung. Radiology had taught them a great deal about pulmonary tuberculosis; it had corrected the belief that used to be held that tuberculosis started most commonly at the apex of the lung; it had taught them the limitations of the movements of the domes of the diaphragm; it had shown them how frequently the disease was more extensive than was suggested by the clinical findings, and, conversely, how occasionally the disease was much more limited than was suspected, owing to the widespread changes in the physical signs caused by local changes in the larger bronchi. Unfortunately, radiology had also to some extent confused them by demonstrating the shadows known as "pleural rings" and those changes at the root of the lung which had given birth to the term "hilum tuberculosis."

The cases that came before them for diagnosis belonged to two groups: the one with few symptoms, in which the existence of pulmonary disease had to be determined, and the group with well-marked symptoms and signs, in which the character of the disease had to be diagnosed. The great majority of the first group consisted of children and young adults, and the commonest symptoms were cough, which had persisted since a cold or an acute specific illness (especially measles and whooping-cough), lassitude, poor development, and dyspnœa. Occasionally in the more advanced cases there was cyanosis. The physical signs usually consisted of impaired resonance, deficient air entry, and some moist sounds. A number of these cases were labelled hilum (or pulmonary) tuberculosis, some being treated as such and bearing the stigma for the rest of their lives. It was here that radiology, with increasing knowledge, would prove of immense benefit. The great difficulty lay in the inability to establish just when the hilum shadow ceased to be normal, and what were the characteristics of early disease as opposed to chronic irritation. It was well known that an impure atmosphere led to increase in density in shadows, that chronic irritation caused enlargement of glands and increased striation, and that in some cases, especially after bronchitis, broncho-pneumonia, and in association with chronically enlarged tonsils, such changes might be very striking. Two things had struck him in X raying a large number of apparently healthy medical students 16 years ago: the enormous variations that occurred in the so-called normal subject (only one of the students had subsequently developed tuberculosis, and his original radiogram had shown nothing striking); and the fact that the traction of the heart to the left with a normal-looking lung and pleura was invariably due to a basal pneumonia in the past. He agreed with Dr. Agassiz that radiology was of the utmost importance in differentiating a non-tuberculous fibrosis from other affections of the lungs. He himself had had many cases sent to him as suffering from pulmonary tuberculosis who were suffering from some other disease—in a large proportion of cases from bronchiectasis. In the majority of these cases radiological examination would settle the diagnosis, although there were some very old-standing cases where the secondary bronchiectatic changes associated with chronic bronchitis were so predominant that it was hard to differentiate between them and a non-tuberculous bronchiectasis. A less frequent mistake was to label cases of malignant disease and of syphilis as cases of tuberculosis. In most of these cases an X ray photograph would have obviated the error. When they turned to the pleural and mediastinal cases the importance of radiology became even greater. An interlobar effusion might be suspected, but it was rarely more than a guess until confirmed by the X rays, while the difficulty was even greater in cases of mediastinal effusion. In the diagnosis of activity of a tuberculous lesion it was the clinical signs and not radiology which had to be relied on, though information could also be obtained from the latter source also. The snow-flake fluffy shadow of an acute lesion was in striking contrast to the denser, sharply defined outline of the fibrotic lesion. At times there was a great temptation to diagnose on clinical examination the presence of a cavity when the radiogram showed that the signs were due to a dense area of fibrosis contiguous with a large bronchus. Occasionally the radiogram would reveal a cavity in the centre of a densely fibrotic area which was unsuspected from clinical examination. The X rays would, moreover, reveal in a large cavity the efficiency or otherwise of such a cavity, and any retained products that might be present. When the case under investigation was one with an effusion or pneumothorax, or a combination of the two, it might be impossible to obtain by clinical examination any idea of the extent of the collapse or the character of the collapsed part of the lung. If on examination a patient was found to have a pleural effusion, it was not sufficient to be content with that as a diagnosis; it was necessary to know the cause of the effusion. It might be failing heart or kidney, trauma, suppuration above or below the diaphragm, an infection, or granuloma inside the pleural cavity or in the lung. It might be secondary to an inflammatory lesion, such as pneumonia, or to carcinoma. It might be primary tuberculosis of the pleura, or secondary to pulmonary tuberculosis. The diagnosis might be easy or it might be extremely difficult, especially if the primary lesion was in a collapsed lung surrounded by liquid. But if the liquid was replaced by air and the collapsed lung partially re-expanded, it became possible, by

radiology, to see the character of the lesion which was primarily responsible.

Precision in diagnosis was essential for determining prognosis and treatment; it was absolutely imperative before any surgical treatment could be considered. To attempt treatment of a case of pulmonary tuberculosis by operative intervention without the most thorough radiological as well as clinical examination was to make the patient run a serious risk. In those cases it was not so much the precise condition of the more affected side, but the character and extent of the lesion in the sound lung which was so important. The value of a radiogram lay in its clarity and in their power to interpret it. An indifferent radiogram might be not only worthless but a source of danger, as they might fail to detect the existence of important lesions, and act on the erroneous idea that they were not present.

The question of the interpretation of the film brought them to one of the most difficult problems. The radiologist who handled hundreds of films could detect abnormalities and describe the shadows far better than the average medical man, but his opportunities for studying the radiogram and the clinical picture side by side and following the development of the case were limited. The physician who specialised in pleuro-pulmonary diseases had very great experience, but it was possibly somewhat less than that of the radiologist, while he was also less aware of the allowance to be made for imperfect exposure or development. He had, however, the advantage of his knowledge of the clinical side. The general practitioner, with the wide range of knowledge required of him, could not be expected to have a thorough understanding of the interpretation of radiograms, and he should, in all obscure cases, call in a specialist or consultant and a radiologist. A frequent cause of delay before patients applied for sanatorium treatment was wrong diagnosis, and in order to obviate this he urged that an invariable rule should be made that when there had been persistence for more than three months of symptoms which might be due to tuberculosis, any sputum present should be examined and a radiogram taken.

Dr. E. RIST (Paris), who followed, emphasised the importance of X rays in correcting physical signs. This was best seen in cases in which there was a deep-seated cavity near the hilum, but even superficial cavities were sometimes absolutely silent to the stethoscope. In pneumothorax work X rays were often helpful in deciding whether the signs heard in the less affected lung were an indication that it, too, was affected, or whether the sounds were merely transmitted from the worse lung. Dr. Rist thought that many cases suitable for pneumothorax had not had the benefit of this treatment owing to the failure of the physician to make use of X rays to assist him on this point. He concluded with a plea for more X ray screen examinations, which had the advantage of showing movement, and should always precede the taking of a film. No chest could now be said to have been properly examined unless a screen examination had been made. Objections on the ground of expense should be met by the reply that there was a time when physicians said they could not afford stethoscopes.

Dr. J. LOGAN STEWART (Manchester) considered that the term "hilum tuberculosis" was far too widely used. It should be dropped as misleading in all cases in which lung tissue was affected; and where the disease was confined to bronchial glands the appropriate name should be used. He showed a number of slides to illustrate the various types of case in which an increase of the hilar shadows was noted. A sharp distinction was drawn between cases in which the adjacent lung was infiltrated and those in which it was not. In the latter class plates were shown in which the heavy shadows were due to pleural thickening over the root of the lung, to interlobar pleurisy, and to vascular congestion in cases of mitral disease.

Dr. J. M. WOODBURN MORISON (Edinburgh), speaking as a radiologist with experience of general practice, considered X rays to be an integral part of the physical examination. A diagnosis on the strength of an X ray examination alone should, however, never be made; and the custom adopted by some specialists of sending a patient to a radiologist with a card marked "X ray of chest, please," was not to be recommended. To illustrate this point three slides were shown, in all of which a very similar picture was given, but which were taken from cases of hydro-pneumothorax, subphrenic abscess, and diaphragmatic hernia.

Dr. C. P. LAPAGE (Manchester) considered fibrosis of the root of the lung to be a common condition in childhood; in these cases the most important function of the physician was to determine whether or not the disease was active. The speaker looked upon loss of tone of the skin between the scapulæ as a useful indication of toxæmia in these cases.

Dr. L. D. PARSONS (Ceylon) advocated the use of tuberculin tests in the diagnosis of early tuberculosis.

Mr. DAVIES, winding up the discussion, agreed with Dr. Rist as to the importance of fluoroscopy, and with Dr. Morison that all doctors engaged in chest work should have some knowledge of radiology. He feared, however, that too much emphasis on X ray signs might result in the neglect of the more important clinical side, which should always come first.

Pathology of the Tuberculosis of Childhood.

Prof. EUGENE L. OPIE began by discussing the question of latent tuberculosis. By this term he did not mean that the disease was dormant or arrested, but merely that it gave no symptoms or signs which could be detected by patient or physician. A comparison was made between latent and open tuberculosis on the one hand and uncomplicated measles and measles followed by pneumonia on the other—a striking illustration of the importance of early diagnosis and treatment. Attention was called to the fact that in children the disease progressed more in the lymphatic glands than in the lung parenchyma. Although bronchial gland tuberculosis was often associated with infection of the lung tissue adjacent, a primary focus could usually be found in the part of the lung drained by the affected gland. Prof. Opie also recalled the fact that when there was a focal lesion of the lung the mesenteric glands were rarely affected, and vice versa, and referred to the curious and inexplicable way in which adult phthisis tended to affect the apex of the lung, in which respect it was in sharp contrast with childhood tuberculosis and animal tuberculosis. Although the adult lesion tended to be chronic it remained confined to the lung for a long time, and for some unexplained reason the lymph glands were usually unaffected. The speaker ended by giving some statistics to illustrate the high incidence of latent tuberculosis in the children of tuberculous parents.

Dr. R. G. CANTI (London) discussed some of the theories as to the path of infection in tuberculosis, based on his observations in more than eighty autopsies on children suffering from intrathoracic tuberculosis. He considered mediastinal infection to be almost invariably secondary to a pulmonary focus, the following reasons being given in support of this view: (1) the glands were involved whenever there was tubercle of the lung; (2) when the glands were affected a focus could usually be found in the lung; (3) the glands which were involved were those which might be expected to be so if the pulmonary focus were primary. The path of infection through the mesenteric glands to the lung was unlikely because these glands were rarely affected in lung cases. The suggestion that bacilli of human type passed through the glands and affected the lung was not tenable, because these glands were just as easily affected by the human as by the bovine bacillus.

Dr. P. F. ARMAND-DELILLE (Paris) showed an interesting series of post-mortem specimens and compared them with X ray plates of the same cases taken a few days before death. The accuracy of the comparison was increased by the speaker's method of hardening the inflated lung in a cast of the chest wall

before cutting sections. The chief point brought out by these observations was that only a small part of the periphery of the hilar region was visible on the X ray plate, the greater part being hidden by the heart. Prof. Opie, in replying, referred to the unexpected opposition to the views he had expressed as to the pulmonary origin of bronchial gland tuberculosis, and recalled that Parrot and Kuss had both described these primary foci before Ghon, and their work had been acknowledged by him.

Interrelation of Physician and Surgeon in Non-pulmonary Tuberculosis.

Dr. D. A. POWELL (Cardiff) opened the third discussion. In non-pulmonary as in pulmonary tuberculosis, he said, the physician and surgeon should be one and the same individual for all purposes of diagnosis and treatment, except those involving major operations or a few highly technical procedures. The tuberculosis officer, to attain this end, should seize every opportunity to train himself to become a competent surgeon, first, by looking upon a period of residence in a surgical tuberculosis or orthopædic hospital as quite as essential a part of his training as residence in a chest hospital or sanatorium; and, secondly, by close linking up of his area surgical work with that of an institution, frequent reciprocal visits and interchange of medical staff being an essential part of the scheme. The speaker believed that in this way the present unfortunate tendency to divorce the conception of tuberculosis of bones and joints from general tuberculosis would be checked. Tuberculosis, whatever its site, was the same pathological process, diagnosed by the same procedures, and treated on the same principles; and he urged that the mere utilisation of methods of treatment similar to those of orthopædics should not blind them to the fact that the essential element in the successful management of cases was a sound knowledge of the disease as a whole, fortified by manual dexterity and reinforced when required by the operative skill and expert knowledge of the general or orthopædic surgeon. Among the definite advantages that would accrue if this unification or closer interrelation could be carried out would be the addition of some much-needed precision to their diagnostic criteria, especially in tuberculosis of glands, and their recommendations for treatment would be based on fact rather than on prophecy. By refraining from making up their minds as to the diagnosis until there was a practical certainty about it, they would obviate, in a large proportion of cases, the mental trauma they so lightly inflicted upon their patients to-day, and would avoid the finality of notification with its consequences. The speaker took, as an instance, tuberculous glands, and pointed out that if the tuberculosis officer or his residential colleague became the surgeon oftener and earlier and excised doubtful glands for examination, their ideas as to the distinction between tuberculous and non-tuberculous glands would be clarified, and they would also realise more clearly that although it was broadly true that a tuberculous lesion was the local manifestation of a general infection, yet that in cervical adenitis both lesion and infection might be localised, accessible, and suitable for eradication.

Few problems in medicine required nicer judgment or greater patience than to decide in bone and joint cases when the disease was quiescent and treatment could be altered, or when the disease was arrested and treatment could be discontinued. In early lung involvement the issue was usually clear-cut—namely, the presence or absence of tuberculosis; in non-pulmonary tuberculosis this issue was complicated by the necessity in addition of differentiating between tuberculosis and a number of conditions which might closely simulate it. As a general rule, tuberculosis officers should content themselves with a provisional diagnosis and *act upon it*. Until tuberculosis officers were physicians and surgeons too they must follow up a preliminary, provisional, or approximate diagnosis by such action as requiring the attendance of the patient at a clinic or his admission to hospital, where the differential diagnosis could be elucidated without detriment to the patient, and where treatment could be initiated without loss of time. By a closer coöperation or unification there would be, among other advantages, a more general recognition of the fact that in associated pulmonary and non-pulmonary disease premature success in arresting the local lesion (especially if the former were the primary manifestation) might even activate or reactivate the trouble in the lung. It would be remembered also that, while the development of secondary deformities was a reproach, caution in attempts at preventing or correcting the primary deformity might not be too high a price to pay for life. The surgeon's association with the tuberculosis officer would enable him to realise more vividly the economic repercussion in adult patients of his occasionally too conservative methods in some lesions of the lower limb. He would also realise that after-care in tuberculosis, as opposed to orthopædics, was more than a medical problem, and connoted much more than the correct use of appliances; that failure was not necessarily due to indifference or carelessness, but to those social and economic disabilities that exerted such a profound effect upon the prognosis of tuberculosis in any form.

Prof. JOHN FRASER (Edinburgh) said that the treatment of tuberculosis might be considered under five headings: (1) excision of the lesion; (2) stimulation of the organism by general treatment; (3) rest—the basis of all treatment; (4) chemotherapy, from which nothing of proved value had resulted; (5) tuberculin. This last was criticised in that it caused an increase in the blood-supply to the affected part, whereas Nature's way of healing involved a diminution of blood-supply, following endarteritis obliterans. Prof. Fraser summed up by saying that if the part were put at rest, Nature would supply the fibrous tissue.

Mr. G. H. GIRDLESTONE (Oxford) deprecated the tendency for the tuberculous cripple to be separated from other cripples, and advocated a national scheme to deal with all bone and joint cases requiring hospital observation and treatment. He considered that there was danger of the non-tuberculous cripple being overlooked unless he was treated by the same organisation that was caring for the tuberculous cases. Far from being an appendage of orthopædics, the tuberculous cases formed the majority of those treated in orthopædic hospitals.

In his reply Dr. POWELL stated that he favoured coöperation rather than amalgamation in the treatment of tuberculous and non-tuberculous cripples.

In the afternoon Dr. ARMAND-DELILLE and Prof. OPIE each showed a series of slides to illustrate the papers they had read in the morning.

SECTION OF TROPICAL DISEASES.

WEDNESDAY, JULY 20TH.

ABOUT 85 persons were present on Wednesday, July 20th, when the President, Dr. ANDREW BALFOUR, opened the Section and recalled that on the last occasion on which the Association met in Edinburgh Sir Patrick Manson announced Sir Ronald Ross's discoveries regarding malaria, and reminded his hearers that those discoveries marked the beginning of a new era in tropical medicine.

Recent Advances in the Treatment of Amœbic Dysentery.

Dr. P. H. MANSON-BAHR (London), who read a paper by himself and Dr. E. G. SAYERS, said that ipecacuanha powder by the mouth and emetine injections had both been found unsatisfactory as a means of eradicating amœbic infection, but the use of emetine-bismuth-iodide, in powder form in gelatin capsules, had proved a distinct step forward. For lasting results a dosage of 36 gr. spread over 12 nights was required along with dietetic restrictions. He quoted some striking cases where this treatment had brought about permanent cure, and as a general rule the more acute the symptoms the more satisfactory and

lasting were the results. Out of 40 cases treated in the last seven years there were five in which the drug had not effected permanent cure. Results from the use of emetine periodide (12 g. per diem) during the same period were less favourable, 5 out of 12 so treated having relapsed almost immediately. The introduction of yatren marked a further advance. This compound of oxyquinoline-sulphonic acid and iodine could be given by the mouth in doses of 24 gr. daily, or could be injected into the rectum in a strength of 2½ per cent. A study of four acute cases treated by this drug showed that it brought about rapid improvement in the patients' symptoms, but did not always eradicate the infection. The experiences described led to the conclusion that in the combination of yatren and emetine-bismuth-iodide (E.B.I.) there lay the greatest possibilities of rapid alleviation and permanent cure. The E.B.I. is given by the mouth in 3 gr. doses for ten nights while by day the patient receives the yatren solution into the rectum. A combination of these two drugs was particularly well tolerated, so that it has been possible to record a series of 22 cases, many of them most intractable and resistant, successfully treated without, as yet, any relapse, although the series included no case which had not been observed over a period of nine months since the cessation of treatment.

In a series of water-colour illustrations (presented by epidiascope) Dr. Manson-Bahr demonstrated the appearances of various amœbic lesions as observed through the sigmoidoscope and the effects of various treatments upon the lesions. The most acute lesions rapidly subsided and healed so that, after ten days of treatment, all that could be observed were small pits or depressions to mark the site of former lesions. These depressions, often microscopic in size, were also seen in "carrier cases" and in the latent or chronic forms of the disease.

Prof. CHARLES A. KOFOID (California) said that laboratory findings in over 4000 cases of infection by *Entamœba histolytica* during the past nine years confirmed the greater efficiency of E.B.I. and emetine periodide as compared with emetine, yatren, and stovarsol; the last two were reported to be useful as adjuvants although neo-arsphenamine was replacing stovarsol with advantage. To establish a negative diagnosis examination of repeated series of six consecutive stools was necessary. He relied for diagnosis primarily upon the finding of cysts and the nuclear structure of matured cysts; and some difficulty might be met in distinguishing between the motile phases of *E. histolytica* and those of other amœbæ found in human stools. He had been observing an amœba, found in stools, which resembled the largest "race" of *E. histolytica*, and was generally present in the 4-nucleate stage in stools, and had clear pseudopodia in the motile phase. Nearly 100 cases of this infection had been observed among 2578 persons examined. In culture this amœba had maintained its characteristic morphology and behaviour, in one instance for over a year. The characteristics were sharp distinction between clear ectoplasm and granular endoplasm; cysts with 1, 2, 4, and occasionally 8 nuclei; freedom in budding in fresh stools, and, most diagnostic, a single large lateral blob of peripheral chromatin on the nuclear membrane, and the presence of eight chromosomes at nuclear division. The name *Councilmania dissimilis* had been given to this amœba, whose pathogenicity or harmlessness was as yet uncertain.

A paper embodying their investigations was presented by Prof. WARRINGTON YORKE and Dr. A. R. D. ADAMS (Liverpool).

Life-history of Entamœba Histolytica.

In their work they found that cysts of *E. histolytica* develop and hatch under suitable conditions in vitro; moisture and a temperature of about 37° C. were essential for excystation, but the passage of cysts through liquor pepticus or liquor pancreaticus was unnecessary for that purpose. They had devised a method of preparing, from fæces, washed concentrated suspensions of cysts. When such suspensions were inoculated on Locke egg-serum medium the youngest cysts were found to be uninucleate and loaded with glycogen. With development chromatoid bodies appeared, nuclei divided, and glycogen decreased. These processes continued and when the cyst was completely mature and ready to excyst the nuclei were agglomerated, cytoplasm homogeneous and without glycogen, and the chromatoid bodies greatly reduced or absent. They had observed no evidence of autogamy in cyst development, but frequently had seen chromatin particles apparently extruded from nuclei immediately prior to or during division. The freshly excysted *E. histolytica* contained four closely agglomerated nuclei, and the cytoplasm was very firmly alveolar. Its movement was characteristically slug-like, nuclei almost invariably anterior, and a more or less motionless tail was dragged behind. In cultures most 4-nucleate excysted amœbæ divided, directly or indirectly into four uninucleate individuals, but sometimes multinucleate individuals are formed.

They could not confirm Dobell and Laidlaw's statement that recently passed cysts did not hatch or develop further until cooled outside the body for one or two days; nor the same workers' statement that immature cysts are killed by cooling outside the body. In their experience cooling cysts for periods up to one or two days had no appreciable effect and was unnecessary for further development and excystation. They found the cysts to be killed within five minutes by a temperature of 50° C.; to be resistant to emetine and yatren, and relatively so to hydrochloric acid and chlorine, but they were quickly destroyed by phenol disinfectants, formalin, and perchloride. The cysts survived only 7–10 days in fæces at laboratory temperature and only slightly longer at 0° C.; even when washed free from fæces and stored at 0° C. they survived only two or three weeks.

The life of the cysts in man's intestine was short; development from precystic stage to mature quadrinucleate cyst proceeded rapidly and steadily, and was complete in a few hours. This explained the fact that cysts passed by the same person at different times were often at varied stages of development. Mature cysts probably died if they did not escape from the bowel in, at most, 48 hours. Excystation did not take place in fæces or in extracts of fæces in Locke serum in vitro. From this fact and because prolonged search has failed to reveal typical excysted amœbæ in stools, they concluded that excystation of *E. histolytica* cysts did not take place in the bowel in which they were formed, and that the hypothesis of Sellards and Theiler, that relapses in amœbic dysentery may partly be due to excystation of cysts long stored in the bowel was incorrect.

Problems of Malaria Prophylaxis.

To introduce this discussion copies were distributed of an article by R. Hegner setting out 40 points with regard to malaria in which knowledge is lacking or incomplete. In opening the discussion Lieut.-Colonel S. P. JAMES (Ministry of Health) based his remarks on the findings of the Malaria Commission of the League of Nations, published in that Commission's second report, in the drawing up of which Colonel James assisted. He said that two limitations applied to the recommendations of that report; first, they were applicable to European countries; and, secondly, to countries who could undertake only a moderate expenditure. As a rule the Commission's recommendations represented a compromise, the various members endeavouring to arrive at what might be called the "average opinion." In his view present knowledge and resources rendered it necessary to restrict the aim to "scotching of the enemy"; eradication was as yet unattainable. The Commission had laid stress upon the fact, often overlooked, that there are methods of dealing with malaria which have proved effective apart altogether from the knowledge of the transmission of the disease by mosquitoes, and there was no one method of malaria control which could be described as superior to all others, and therefore to be universally adopted. Malaria control

was essentially a *local problem* requiring preliminary local examination before plans were framed. The Commission considered that it was advisable to limit the methods adopted to one or two well-tried operations rather than to put in action simultaneously a large number of methods reported successful elsewhere. Malaria control measures were often classified as direct and indirect, and the Commission had employed the term direct in a very strict sense—namely, as properly applying only to the killing of the plasmodium either in man or in the mosquito. General antilarval measures were classed as indirect. Certain direct methods were called "primary measures," were concerned with infected persons and the interior of their dwellings, and were indispensable. Treatment of cases, adequate and gratuitous provision of quinine, and arrangements for diagnosis were of first importance; inspection of school-children, following-up of patients to their homes and house-to-house inquiries might be undertaken by duly qualified health visitors. The Commission also recommended as a "primary measure" the systematic killing of adult female anopheles in the interior of dwellings; it was preferable that householders themselves should be educated to undertake this duty. Regarding places where the economic position and social status of the people made these primary measures impossible, nothing save the free distribution of quinine could be attempted until permanent settlement of the land and a fair standard of housing and living had been brought about. It was striking that on some plantations extensive drainage and antilarval works had been undertaken without lessening of malaria among the labourers, who continued to be badly paid and poorly housed. The terms "bonification" and "assainissement" were often misunderstood. The benefit of drainage was often through improved agricultural and economic conditions rather than through reduction of mosquito breeding-places. The continuing of scientific research was most important. The Commission recommended stations for epidemiological observations over a number of years, and laboratories (in countries employing malaria therapeutically) where pure strains of malaria might be cultivated in mosquitoes. Such laboratories established in organised hospitals would provide opportunity to study clinical and parasitological features of malaria and the action of quinine and other drugs which might be introduced.

Lieut.-Colonel E. D. W. GREIG (Edinburgh) described his study of 18 cases of intentionally induced malaria. Well-marked differences of individual susceptibility were observed; if a practical test for the detection of degree of susceptibility could be devised it would assist in prophylaxis. He outlined the problems which present themselves in connexion with the latency (incubation period) of malaria, the time of appearance of sexual forms of the plasmodium, and the uncertainty whether the malaria parasite produces a toxin, and illustrated his remarks by lantern slides of temperature charts.

Dr. MANSON-BAHR gave an account of his employment of plasmochin and plasmochin compound in treatment of malaria. The selective action of this drug for the sexual forms of the parasite made it valuable for prevention of spread of the disease.

Prof. MARTINI (Hamburg) thought there was a danger that Governments would interpret the Malaria Commission's report as sanction for their doing nothing but provide quinine. He leant towards the employment of thorough antilarval measures. He gave an account of his malaria studies in South Russia and Asia Minor, and stated his opinion that cases of so-called spring malaria are nearly always relapses of infections of the previous autumn. He had successfully based his plans for personal prophylaxis in this belief, neglecting precautions in the spring-time.

Dr. L. W. HACKETT (Rome) gave interesting particulars of the use of Paris green as a larvicide in the work of the International Health Board in Italy.

Dr. DRBOHLAV told of malaria in Czecho-Slovakia, and Colonel JAMES summed up the discussion and replied to some questions.

SECTION OF THE HISTORY OF MEDICINE.

AT the first meeting of this new Section, held on July 22nd, the President, Dr. J. D. COMRIE (Edinburgh), hoped that the chief aim would be to treat the history of medicine as a subject of living interest. He was strongly of opinion that it should form part of the medical curriculum.

The Evolution of Disease.

Sir HUMPHRY ROLLESTON (Cambridge), opening a discussion on this subject, said that W. P. Alison was convinced of a change in the types of disease in the course of the first 30 years of the nineteenth century, but the supposed change from sthenic to asthenic type was attributed emphatically by Hughes Bennett to the effect of treatment rather than to any inherent alteration in disease. The science of palæopathology, by the study of morbid anatomy in the fossil remains of man and animals of 500,000 years ago, notably the work of R. L. Moodie in America and of M. A. Ruffer Fouquet, Elliot Smith, and Wood Jones in the investigation of mummies in Egypt, had yielded a considerable amount of valuable information as to the existence in ancient times of conditions of modern disease, recognisable even at great lengths of time. These included arteriosclerosis, rheumatoid arthritis, gout, pyorrhœa, hydrocephalus, pneumonia, anthracosis, cirrhosis of the liver, and peri-appendicular adhesions. Achondroplasia was not uncommon in ancient times, for, besides the skeleton remains of achondroplasics (e.g., in the Tomb of Senab, 2900 B.C.), mural paintings and sculptures of 5000 years ago showed evidence of the disease in figures of the Egyptian gods, Ptah and Bes, and in those of the dwarfs of ancient Egypt, chiefly among males, as also, at a much later date, did figures of court attendants in paintings by Velasquez and others. The pigmies, regarded by Pierre Marie as achondroplasic, were not really so, but were probably as much a racial variation in ancient times as those now known in the forests of Central Africa. Pott's disease of the spine and steatopygia, a gluteal overgrowth of the adipose tissue, as in the Hottentot Venus, had also been reproduced in statuettes by the Egyptian sculptor. Berkeley Moynihan had recognised in a bust done of Alexander the Great in his fatal illness the manifestations of cerebro-spinal fever. It had been possible to identify rickets as well as achondroplasia in remains from Herculaneum and Pompeii, but no evidence of rickets had been found in Ancient Egypt, nor of authenticated syphilis as had been claimed, for Elliot Smith had shown that the supposed syphilitic bone changes were due to the erosion of human remains by beetles, long after burial.

Tuberculosis had been recognised in Egyptian mummies, and in the pulmonary form was probably common also in ancient Greece, where also mumps was apparently definitely known, and with its complication, orchitis, had been described by Hippocrates. Ancient votive offerings of patients seeking cure from their deities showed attempts at reproducing their particular complaint. Although certain conditions of disease were not known to the medical profession till a much later date, their existence long previously had been portrayed by old artists, as example, the portrait of Frederick I. of Prussia by Lucas Van Leyden in 1521, reproduced by Semon, which showed the typical adenoid facies; yet it was only in 1868 that William Meyer, of Copenhagen, first described adenoids to the profession. The dancing mania prevalent in the fourteenth to the sixteenth centuries and variously called the dance of St. Guy, St. John, St. Anthony, and St. Vitus, had been identified from old relics, and in Raphael's paintings, as hystero-epilepsy. From the written records of diseases occurring in the past—e.g., leprosy and hydrophobia—though far more numerous than pictures and drawings, it was more difficult to recognise their true character and to decide as to a change in type, as the description possibly covered more than one disease occurring at the same time. The designation "lepra" probably

included not only true leprosy, but also pellagra, lupus, syphilitic, and other skin lesions.

Disease was the reaction of a complex organism to various influences, and the changes in social conditions brought about by famine, war, and overcrowding had more effect on the spread and type of acute than chronic disease, but alterations of the former were more difficult to determine. The change from the cave man to the club man was a very considerable one, spread over a period of ages, whereas the transformation of lowly organisms occurred with far greater rapidity than in the higher animals. It was probable that alterations in the virus were of more importance in bringing about a changed type of disease than alterations in the host. Small-pox and scarlet fever provided examples of changes in the virus resulting in asthenic types of those diseases, as common at the present day. Alteration in the character of the soil and seed might bring about a new disease, or be responsible for the waxing and waning of the original manifestations of a disease, which at the present day had led to so much separation and differentiation of the various types of infection. In the case of typhus, probably the famine fever of ancient Greece, and not till the nineteenth century differentiated from typhoid fever, was it possible that typhoid and paratyphoid fevers had been originally evolved from it, although now clearly recognised as distinct? Chicken-pox and vaccinia might reasonably be regarded as belonging to the same stock as small-pox, yet their differentiation had become essential, and even alastrim, modified or para-smallpox, was held by some to be an entirely separate disease from true small-pox, which until Sydenham's time was confused with hæmorrhagic measles. There was, however, evidence as far back as 1100 B.C. of an eruption like small-pox, which had been identified in an Egyptian mummy of that period.

The influence also of secondary infections on the type of disease had caused much confusion as to the primary cause. Particularly was this the case with influenza, in which the hæmolytic streptococcus had played so important a part in recent epidemics. The evolution of the streptococcus was possibly correlated with the variety in the types of streptococcal infection recognised at the present day, and its presence as a secondary infection had been held by some to account for the severe form of small-pox. Influenza had been claimed by Sir W. Hamer, F. G. Crookshank, and J. T. C. Nash to have occurred in the past under the name of sweating sickness, and again in Picardy in 1886. No fewer than 194 epidemics had been recorded by Hirsch in France between 1714 and 1874, as compared with only five in England in the fifteenth and sixteenth centuries. Chantemesse held that these outbreaks were distinct from true influenza, contrary to Hamer's opinion, which embraced also cerebro-spinal fever, encephalitis lethargica, and dengue as influenzal manifestations. The spread of disease had been productive of great national crises; for example, to the prevalence of malaria had been attributed the decadence of Greece and Rome. The clinical resemblances of the disease, past and present, as derived from contemporary literature, left little doubt that malaria was prevalent in Greece from the fourth century B.C. and in Italy from 200 B.C.

Bubonic plague was a disease which may have been known well before the Christian era. It was conjectured to have attacked the Philistines severely after their capture from the Israelites of the Ark of the Covenant, and was probably symbolised in the gold offerings (representing the tumours or emerods from which survivors had suffered, and the mice, as supposed carriers of infection) which were made in propitiation when the Ark was returned. Apart from that biblical record, the earliest reliable diagnostic account had shown plague to have appeared in Egypt, Libya, and Syria in the third century B.C. Later, in A.D. 70, Aretæus had mentioned pestilential bubo, but the history of the disease could be more confidently traced from the great plague of Justinian, which came from Egypt in A.D. 542 and overran Europe. The term "plague" had been one of wide application and it was probable that the plague of Athens, described in 430 B.C. by Thucydides and Diodorus Siculus, included diseases as widely separated as malignant scarlet fever, small-pox, and typhus. Similarly the pestilence in Rome, known as the Antonine or Long Plague of A.D. 165, of 15 years' duration, had been variously identified as dysentery, small-pox, and typhus, and was possibly a succession or conglomeration of different diseases.

The history of diphtheria had demonstrated the difficulty of distinguishing between the various severe forms of throat infection and what was now recognised as clinical diphtheria. Adami had held that the true diphtheria bacillus represented a change in type of the harmless diphtheroid variety, and that the transformation had shortly preceded Bretonneau's classic account of the disease in 1821. Appendicitis, so common at the present day, could be described as a modern disease, for at the beginning of the nineteenth century Parkinson and Addison regarded it as a rare condition. Had it not been so, there was no doubt that many more people would have died from it for want of operation. However, detailed descriptions certainly existed earlier than that of Fitz, of Boston, in 1886.

It was only in the sixteenth century that gout and rheumatoid arthritis had been distinguished, yet evidence of chronic arthritis had been found in neolithic skeletons and in ancient Egypt. Jeanselme, in his study of gout in Byzantium, was of opinion that six out of 24 sultans between the fourteenth and seventeenth centuries had suffered from gout.

The incidence of aneurysm, particularly of the popliteal artery, which was known in the fifteenth century, and its relation to syphilis at that period, drew attention to the disputed origin of syphilis, whether brought from South America by the crews of Columbus' expeditions, or, as some held, long known in Europe in a mild concealed form and transferred to the virgin soil of newly discovered America, there to develop in epidemic and virulent form. The Great War, however, had shown the importance of trauma as the chief cause of popliteal aneurysm, although now become a rarity, possibly attributable to changes in occupation, riding having been largely replaced by motoring.

Dr. G. M. CULLEN (Edinburgh) in a paper on

World Epidemics

and their relationship in cause and effect on social conditions, referred to the too frequent perversion of history to the point of view of the propagandist and partisan. By the influence of the individual, too great significance became attached to individual ideas, resulting, in the case of one medical biographer, in concentration on one idea—e.g., that all patients were suffering from eye-strain due to mild astigmatism, or, among the followers of psycho-analysis, that every patient was afflicted with some form of insanity. It was curious to note that, on the other hand, so important a subject as the influence of great epidemics—e.g., the black death—on the history of a people or nation had been much overlooked. Even in the works of Hume and Green the aftermaths of past epidemics had received little or no notice. Now, however, those effects were being better studied, thanks to the researches of W. H. S. Jones and others on the influence of malaria on Greek history.

Dr. Cullen drew attention to the outstanding importance of three dates in the history of civilisation: (1) 430 B.C., when Greece was at the zenith of her power. A hundred years later came her decline and eclipse by the conquests of Alexander the Great. (2) A.D. 542, the Justinian period. Within a century the Arabs had ravaged the Roman empire. (3) A.D. 1348. In 1358 the Turks set foot in Gallipoli and effected the conquest of Constantinople. It was significant that each of these dates, when the respective

nations held world-wide sway, marked the development of widespread epidemics, the first, malaria, the second, plague, and the third the black death, the results of which had effectively prepared the way for conquest by loss of life and the flight of citizens from the stricken towns, which had been more marked in civilised communities. Following the depopulation caused by the black death in 1348, efforts were made to attract fresh inhabitants to the cities, which consequently rose in importance and prosperity. There followed confederations such as the Hansa league of towns, which marked the downfall of the feudal system owing to the weakened power of the nobles. The protection of the king was afforded to towns against the nobles, until power became concentrated under one rule, and by the end of the fifteenth century the kings of England, France, and Spain had become absolute monarchs. Pestilence first enlisted the labourers against the army of capitalism, and in France, for instance, led to the rising of the Jacquerie. There resulted the breaking down of social distinctions, so obviously lacking in death, and it was then the saying originated "When Adam delved and Eve span, who was then the gentleman?" The real birth of the middle-classes belonged to that period, and the rapid change of hands of unaccustomed wealth led to reckless prodigality and many alterations in social customs and dress. In no direction, perhaps, was the effect of the black death more marked than in regard to religion and in the sense of dependence on the Almighty. Moreover, the heavy mortality among priests was regarded as due to divine visitation, and it was only the survivors who were judged to have been fit to administer sacrament. Efforts to fill up the losses in the priesthood failed or attracted only those least fitted.

Dr. Cullen concluded by drawing comparison with the present-day love of pleasure and disregard of religious observance, following the Great War, and the widespread influenza epidemics. Whether these complaints were justified, it was not his duty to inquire, but to note the similarity of symptoms and their possible significance.

Industrialism and Health.

Miss M. C. BUER (Reading) contributed a paper on the effect of early industrialism of the eighteenth century on the health of the community. She drew attention to the decline in death-rates during the eighteenth century unaccompanied by change in birth-rate, as responsible for the rise in population between the years of 1750 and 1815, thus:—

	Death-rates per 1000.		Death-rates per 1000.
England and Wales	1750 .. 35 1815 .. 20	London	1750 .. 50 1815 .. 30

Economic advance had not been at the expense of the public health. The main part of the population in the eighteenth century were living in isolated communities where the death-rate was highest. In mediæval Europe, she referred to the influence of overcrowding, polluted water-supplies, lack of sanitation, and the failure of food-supplies leading to the killing off of cattle for conversion into salted foods. The shortage of green vegetables and root crops had given rise to marked prevalence of rickets and scurvy. Reference was made to the conditions in this country from records of the seventeenth century, when the towns were hot-beds of infection, and the water-supplies were polluted by the carcasses of dead animals in the conduits.

From the fifteenth century onwards there occurred the transition from an agricultural to an industrial state, and the growth of towns reacted on the extent of agriculture. The increase of vegetable culture led to a decrease of rickets and scurvy, and drainage, undertaken for cultivation, resulted in a decline in the prevalence of malaria. In the middle of the eighteenth century came the rapid growth of hospitals, and the end of the century was marked by important changes in the hygienic conditions of the army, thanks to the work of Pringle, Lidden, and Percival in their campaign against typhus, whose efforts ranked with those of Chadwick in the nineteenth century. In 1783, through the efforts of Haygarth, Leicester was first provided with a fever isolation hospital, and in 1797 similarly in Manchester a "house of recovery" was erected. At that time the campaign of cleansing dwellings with whitewash, the introduction of cotton clothing, and the substitution of iron for wood bedsteads had a combined effect on the prevalence of typhus, mainly the result of the work of Howard. Before the improvements begun in the middle of the eighteenth century, 75 per cent. of the children died before reaching the age of 5 years, but in the latter half of the century the heavy death-rate decreased following improvement in food and the rise in interest in child welfare. Lying-in hospitals were established, and the spread of knowledge showed itself in 1815 in the opening of the first baby clinic in London with instruction to mothers in infant feeding.

The change brought about in the second half of the eighteenth century was shown by the following figures from the British Lying-in Hospital—

	Maternal mortality.	Infant mortality per 1000 deliveries.
For the ten years ending 1758	24	66
" " " 1798	3·5	13

and at the Westminster Infirmary in the 30 years between 1750 and 1780, a decline in maternal mortality from 15 to 3·7 per 1000 deliveries was recorded. At the end of the eighteenth century, the death-rate, which exceeded the birth-rate up to 1820, when the reverse first showed itself, amounted to 22 per 1000 in the country districts and 30 per 1000 in the towns, and reached a higher figure earlier in the century. The earliest days of industrial evolution at the beginning of the nineteenth century, for the knowledge then existing, showed relatively greater improvement and lower mortality in comparison with the present day with its much more advanced state of education and scientific progress. As regards the correlation between economic conditions and hygiene, Miss Buer debated whether the slow rate of progress in preventive medicine and backward state of agriculture and industry in the east were merely an accidental association, or more likely, factors which were closely interdependent.

She concluded by stating her firm conviction that present-day civilisation in this country was far from effete, but intensely vital.

In the discussion following the three opening papers Prof. VAN LEERSUM (Amsterdam) referred to the uneasiness felt in Holland as to the frequency of thyroid enlargement, whether affected by the presence of traces only of iodine in the water-supplies. The fact that in the fifteenth and sixteenth centuries goitre was very common, to judge from frequent appearance in models of the period, showed that even with the improved conditions of water-supply its occurrence at the present day remained unaccounted for.

Dr. J. R. RATCLIFFE (Birmingham) was of opinion that, to obtain reliable evidence of changes in type of disease, systematic records of clinical symptoms were essential. He sought explanation of the changes shown by scarlet fever, once so serious, now merely a nuisance from the diagnostic point of view, and as to why chlorosis and anæmia had now practically disappeared, and membranous croup was no longer seen. Bacterial evolution was a question of the number of generations which succeeded each other so rapidly that a change could take place very much quicker than in the human organism, hence the possibility of change in type of disease in a relatively short space of time.

Lieut.-Col. STEPHENSON (I.M.S., retd.) dwelt on the medical interest attaching to the scientific writings of a Persian poet and historian of the thirteenth century, in a compendium of the various known minerals, plants, and animals, and the medicinal uses of each. The state of knowledge in the fourteenth century in Persia as regards disease, for instance, the accounts of what was probably diphtheria, of

quartan fever, and the distinction of gout from chronic rheumatism, argue that the east had possibly anticipated the west. That hemiplegia once fairly common in the Punjab was now rare, pointed to a decrease in arterial disease. The mention made of cataract, corneal opacity, stone, leprosy, tuberculosis, and ringworm, and their treatment, all of which were still common complaints, showed the development of medical science in a broad sense which had existed in mediæval Persia.

Dr. A. A. WARDEN (Cannes) alluded to the date of the first authentic case, confirmed by post mortem, of appendicitis in the death of Gambetta in 1881, maintained by Prof. Lannelongue to be due to appendicular abscess, for which operation was declined.

Dr. W. WRIGHT compared the conceptions of disease now known to be bacterial in origin, but attributed by the ancients to "semina," morbid influences, and "mal odeurs." All sensations were formerly ascribed to particulate matter, and the prevention of disease was confined to counteracting unpleasant effluvia by means of aromatic substances. The carrying of infection found mention in Shakespeare (Henry IV.) in reference to the filthy rags of continental immigrants bringing the semina of disease. Dr. Wright described the work of the late Dr. Charles Creighton on the history of medicine and epidemiology as a classic ranking with Gibbon's History of Rome. Appendicitis had been described by Sydenham in the reign of Charles II. under the name of the "iliac passion," the treatment advocated being the application of the warm belly of a living puppy. The earliest authentic case had been recorded by Heister, a famous Dutch surgeon in the middle of the eighteenth century, who in the course of dissection of the body of a criminal, found the appendix "beautifully injected, and lying free in the peritoneal cavity," and, moreover, stated that the appropriate treatment would have been the application of warm clysters. But for the first anatomical description of the appendix it was necessary to go back to the writings of the anatomist (Berengarius) in the sixteenth century.

Sir HUMPHRY ROLLESTON, in his reply to the discussion, mentioned accounts of appendicitis in the early years of the eighteenth century. Parkinson, who practised in Hoxton, had described cases, as also had Hodgkin, Addison, and Bright, among others. In explanation of the decline of chlorosis, alterations in dress and a more liberal diet in meat, made more easily available by transmission from America, had been put forward as contributing factors.

Prof. A. J. CLARK (Edinburgh) read a paper on

The Historical Aspect of Quackery.

He defined the quack as one pretending knowledge or skill which he did not possess, who preyed upon the unlimited gullibility of the general public, and was actuated by purely selfish motives of personal gain through the exploitation of human suffering. In Prussia, quacks were required by law to register, but in this country there was no such check on their activities, which had been in no way diminished by the spread of education and medical discoveries of the present day. It was remarkable that the greater the advances made by the medical profession, the more unpopular they became with the masses. The last century had seen much agitation against the successes of medical science—notably antivaccination and antivivisection—movements in which there was evidence of strong feeling of distrust of the profession and a readiness to turn to the charlatan who claimed to possess supernatural powers of healing. The common type of quack was a man of forceful personality who exhibited a profound belief in his semi-miraculous powers of healing, regarded himself as inspired and so independent of the too slow advance of science. Among the many quacks there had been in the past and at the present day he mentioned Perkins, who 100 years ago attracted an immense number of followers to believe in his power to cure all disease by stroking the body with two metal rods or tractors. The most recent quack appliances were forms of simple electrical apparatus, for which great claims as panaceas were made, and certain of them had succeeded in achieving remarkable notoriety, mainly in America—e.g., in the case of "Dr." Rogers for whose radio swindle the sum of 500 dollars was charged; also Gaylord Wiltshire, who about a year ago in California traded on his extraordinary facial resemblance to Bernard Shaw. He supplied an apparatus consisting of a coil of insulated wire, with plug and socket in the form of a horse collar which was claimed to magnetise the iron in the hæmoglobin of the patient's circulating blood and so to effect cure. Dr. Abram's box or reflexophone, for which preposterous powers of diagnosis and cure had been claimed, was an apparatus of quite simple electrical device; it had attracted, until his death, a remarkable following in America, and had met with considerable attention in this country, where professional inquiry had failed to justify the extravagant claims made for it.

Prof. Clark concluded by stating that the basis of the success of the quack was the innate belief of mankind in the supernatural, much the same now even, as among primitive races convinced of the reality of magic and largely under the influence of mass suggestion. Religion, in the form of Christian science, appealed to a large number of the more intelligent people at the present day, as a means of finding cure from a great variety of conditions of disease and akin to it was the faith in the virtue of a charm or incantation of which there were many familiar instances in common practice, all of which were evidence of the underlying belief in the power of magic and survivals of the large part played by the supernatural in the life of primitive man, and seen to-day so forcibly in the fetish worship of native races.

Reports and Analytical Records.

MONARCHISTA OLD PORT.

(J. G. THOMSON AND CO., LTD., THE VAULTS, 87, GILES-STREET, LEITH.)

THIS wine, which was matured in wood, when analysed was found to have the composition:—

Alcohol by volume	19·4 per cent.
Alcohol by weight (grammes per 100 c.cm.)	15·3 ,, ,,
Total sugar	11·32 ,, ,,
Sugar-free extractives—	
Fixed acid as tartaric	0·33 ,, ,,
Volatile acid as acetic	0·02 ,, ,,
Mineral matter	0·22 ,, ,,
Water	72·81 ,, ,,

Preservatives were tested for with negative results. The wine is light in colour with a good aroma and palate. It may be regarded as a well-matured sound port.

BALKAN SOBRANIE CIGARETTES (LARGE SIZE).

(ALBERT WEINBERG, 3, CARLISLE-STREET, SOHO-SQUARE, LONDON, W.)

The tin contained 25 cigarettes, each weighing 1·57 grm. (24¼ gr.); approximately 18 cigarettes weigh 1 oz. The paper of each cigarette weighed 0·0503 grm. (0·77 gr.).

On analysis the following results were obtained:—

Moisture	12·56 per cent.
Ash	16·26 ,,
Sand	0·70 ,,
Nicotine	1·10 ,,

The cigarettes are stated to be made of finest Yenidje tobacco, and the analytical figures support this statement. The tobacco is of a good quality, quite free from stalk and midrib, contains very little sand, and possesses an agreeable odour. The cigarettes burn slowly and evenly, and are cool to the palate and throat.

Reviews and Notices of Books.

TEXT-BOOK OF PSYCHIATRY.

By D. K. HENDERSON, M.D. Edin., F.R.F.P.S. Glasg., Physician-Superintendent, Glasgow Royal Mental Hospital; Lecturer in Psychological Medicine, University of Glasgow; and R. D. GILLESPIE, M.D. Glasg., D.P.M. Lond., Physician for Psychological Medicine, Guy's Hospital, London. London: Humphrey Milford, Oxford University Press. 1927. Pp. 520. 18s.

Dr. Henderson and Dr. Gillespie have produced a text-book of psychiatry well in accordance with the modern developments of psychological medicine. Their outlook throughout has been definite and consistent, being founded chiefly upon the teachings of Eugen Bleuler and Adolf Meyer. Again and again emphasis is laid on the important fact that the psychotic picture is largely determined by the character traits present in the individual in his normal healthy state, and that the mental picture may vary just as one individual does from another. Like Clouston they consider it "unphilosophic to say that mind cannot rank as a causative factor, it seems contrary to plain clinical fact . . . to set aside the mental treatment of insanity would be to deprive ourselves of our chief therapeutic resource in many cases."

Starting from these premises, the authors have written a useful book, and have shown a comprehensive grasp of modern methods of care and treatment. Although emphasis is primarily laid upon the psychic side of the problem, physical methods are given their place in the scheme of treatment; appropriate drugs, hydrotherapy, rest, open air, occupational therapy are all included. These are not extensively detailed; for instance, malarial treatment for general paralysis is dismissed with a brief survey, and the differentiation of appropriate cases is not even attempted. The Glasgow Royal Mental Hospital has considerably developed occupational therapy, and good results are claimed from it in a number of cases, a sine quâ non being intelligent coöperation between the instructors and the nursing staff. The authors believe auto-intoxication to be overrated as a causal factor in mental disease, and draw attention to the work of N. Kopeloff and George Kirby in this connexion. They suggest a classification of mental states which is in accordance with Bleuler's views of the various "types of reaction." The chapters on the psychoses are very clear; the authors prefer to speak of schizophrenia rather than of dementia præcox as a separate entity. Involutional melancholia is excellently dealt with and carefully differentiated from the depressive phase of manic-depressive insanity. The high standard of the sections on the psychoses is hardly maintained in the chapters devoted to the psychoneuroses. These seem to have been modelled largely on the work of J. Dejerine, and an attempt has been made to fill gaps by a reference to the conditioned reflex, which is in no way explained or elaborated. Psycho-analytic methods are given a place. The writers seem to base their comments mainly on the earlier works of Freud, for their description of the technique is scanty, and no reference at all is made to the mechanism of cure. They deny the necessity of a sexual trauma in the generation of a psychoneurosis; yet in many of the cases quoted in support of this contention there are obvious irregularities in the patients' sexual lives. The book closes with the usual chapter on the medico-legal aspects of insanity. The fact that carefully selected case-histories are frequently used to illustrate the various mental conditions, in conjunction with the clear and concise style, makes the book easy to read in spite of the excessive use of brackets.

Students and practitioners who desire a good insight into the theory and practice of modern psychiatry will be well advised to study this work.

THE PSYCHOLOGY OF CHILDHOOD.

By MARY SCHARLIEB, D.B.E., M.D., M.S. Lond., J.P. London: Constable and Co., Ltd. 1927. Pp. 194. 6s.

BOOKS on child psychology are extremely plentiful to-day, and are superficially much alike, but of very varying merit. Possibly none of them do much harm, as a mediocre writer will generally rely on the unexceptionable statements of a standard text-book, but no parent wants to waste time reading second-hand advice. The distinguishing feature of a book of this sort is the atmosphere which the writer manages to create in it, and which will incline the reader towards an attitude of mind more than instruct him or her in certain facts. Dame Mary Scharlieb has the highest qualifications of knowledge for this task, as she has brought up a family of her own, has carried on child practice for the large part of her life, and is a magistrate in a London juvenile court. The advice she gives is absolutely sound, and permeated with a refreshing comprehension of what is best in the modern schools of psychological thought. What perhaps, however, will capture a parent's confidence more than this is the atmosphere the book carries of ripe conservatism. There is no raw controversy nor tacit scorning of old beliefs. Dame Mary Scharlieb reminds parents throughout that the whole success of their venture depends upon their whole-hearted practice of the ancient virtues of mutual devotion and responsibility, and frankly advocates the practice by them of the traditional religion of the Church, and that they should instruct their children in it. Whatever a reader's individual views, he will not fail to profit by the ideal (that the writer holds up) of whole-hearted self-application to the most difficult task of all.

A DOCTOR'S VIEW OF LIFE.

By WILLIAM J. ROBINSON, M.D. Edited, with a biographical introduction, by EDEN and CEDAR PAUL. London: George Allen and Unwin, Ltd. 1927. Pp. 526.

THIS book consists of a miscellaneous collection of short articles, aphorisms, and jottings from the pen of an American medical man of wide literary and humanitarian interests. For nearly 25 years Dr. Robinson has been the editor of a paper, *The Critic and Guide*, from which the contents of this book are, for the most part, reproduced. They range over a wide variety of subjects—the Great War, travel, literature, character types, athleticism in America, and numerous contemporary medico-social questions such as birth control (of which the author has always been an insistent though temperate advocate), vivisection, dietetics, sexology, psycho-analysis, and others. These subjects are treated with a vigour, a candour, and a consistency of outlook which springs from a clearly formulated philosophy. It is the outlook of an advanced liberal, a pacifist, an advocate of freedom of speech and thought, an agnostic. Yet Dr. Robinson is no extremist. Though an agnostic he is tolerant, appreciative even, of the religious attitude; though a pacifist he is not an unresister; though desiring greater freedom of discussion and action in sexual matters, he is neither an advocate of unrestraint nor a believer in the pan-sexualism which now dominates psycho-analytic theory; though a birth-controller, he holds that births must be intelligently regulated in the light of racial and international as well as of personal issues. The position which he assumes is, therefore, one which exposes him to attack on both flanks—from opponents of his mode of thought and from extremists in the causes which he has espoused.

Dr. Robinson's fearlessness and candour—both of which, the reader feels, are rendered the more effective by his essential disinterestedness—have made him many enemies, especially during the war. But they have also made for him may sincere admirers and supporters.

THE LANCET.

LONDON: SATURDAY, OCTOBER 1, 1927.

THE NEW MEDICAL SESSION.

ON the first of October words of welcome may well be addressed to the students who to-day are beginning their studies in the various medical schools. The official introductory lecture is not now, as it was by former generations, considered to be an essential feature of the opening of the winter session; but in a few schools the old custom is maintained, while the speakers at various inaugural dinners, though addressing gatherings comprised mostly of qualified men, will be sure to reflect upon the course which medical training now takes, and to consider the professional outlook in its general and special developments. We believe that they will be able to congratulate with real sincerity those who have decided to enter upon the career of medicine, and also that those to whom the management of our professional education is entrusted to-day are aware of the great difficulties which attend the medical career, and are prepared to smoothe them for their juniors. No time will be wasted which is spent, as opportunity offers, in assisting the recent recruits to grasp the principles on which medical practice will have to be conducted, in whatever of the varying careers they may decide to adopt. Life in a medical school is well calculated to produce sympathetic recipients of such advice, for as a means for the development of character it is doubtful if any better training could be devised than the routine of the medical student both in the intensive nature of the studies and in the breadth of their purpose.

But the probationary training must often be truly bewildering to a recruit. The curriculum grows yearly more elaborate, and its rigidity is imposed upon it by an examination system for which nothing else can be substituted. So that the teacher and the taught are alike engaged in a fight against time. Yet it is essential that the medical student should have placed before him the fact that the object of his long years of study is not to pass examinations, but to fit himself to carry on a great corporate work for the benefit of mankind. It has long been advocated in these columns that opportunities should be made at medical schools for the giving of advice to those about to be qualified upon the conduct of medical practice. This implies no regret at the dispensing with the old apprenticeship system, for even when it flourished only a small proportion of the medical students had a sound conception of what may be called professional ideals, and there is no reason to suppose that the proper spirit cannot be thoroughly well inculcated in the medical schools of to-day. It is generally recognised that the ethical conduct of a doctor is dictated by the same rules and observances of neighbourly duty as the conduct of those who follow any other profession, and elaborate codes would not help the good doctor who is a good citizen, and might even defeat their object. No profession can be inspired with lofty endeavour by by-laws. Ethical rules to have value will be those which teach the student while he is still at the hospital, as the practitioner when faced with facts, that medical practice must be conducted in accordance with the spirit that makes all members of the profession ready to participate in the strengthening of authority for the prevention of backsliding, and equally ready where necessary to represent to authority that the guidance may itself need guiding.

The number of medical students registered during the year in each of the three divisions of the United Kingdom for the past 20 years appears now to stand in normal relation to the population, and the figures relating to qualification during those years have the same message. An increase of students from 1915 to 1920 arose distinctly out of the immediate needs of the war, and was reflected five or six years later in the larger number of those acquiring medical degrees or diplomas. Five years ago Sir DONALD MACALISTER, in giving to the General Medical Council the figures relating to medical students for recent years, pointed out that the number registered in 1920 was higher than any that had occurred previously save in 1919, the tendency having been steadily upwards since 1913. The figures to which he referred ranged from 1480 students in 1913 to 3420 students in 1919, and those who could read meaning into the figures felt safe in prophesying that a movement downwards in the entry to the profession would take place. This duly occurred, and the number of medical students in 1926 was actually a little below the figure of 20 years previously, and a little more than a third of the number in 1919. But the figure for 1926 is more than double the figure reached in 1923, when for no very obvious cause the alterations in the curriculum of study led to the registration of only 545 new entrants. The figures certainly suggest stabilisation, and do not support in any way the oft-repeated statement that the profession is or is likely to be overcrowded. It will be safe for those in charge of our new adherents to tell them that there is no risk of unemployment.

NEW LIGHT ON PERNICIOUS ANÆMIA.

EVERY contribution to our knowledge of pernicious anæmia deserves close attention, because it is a malady with a necessarily fatal upshot, and one which, according to a wide body of medical opinion, is becoming commoner every year. Interest centres at the moment around the claims of American workers to have obtained striking results from dietetic measures, and especially from the administration of diets containing large quantities of liver. Dr. G. R. MINOT and Dr. W. P. MURPHY, of Boston, have now published [1] a study of 105 cases of pernicious anæmia treated by this method during the last few years. In their previous communication, 18 months ago, they referred to 45 cases only, but many others have since come under their notice with results not appreciably different from those observed in the smaller series. Their successes have been confirmed by other American physicians, and unpublished reports from observers in this country have been of a like enthusiastic nature. In general the observed effect has been to restore the red corpuscle count from the low figure seen during the acute attack to something over 4½ million per cubic millimetre. Relapses have been singularly few, and cases which have done less well have almost uniformly been those in which insufficient amounts of liver were being taken. The diet prescribed by MINOT and MURPHY consists of about 200 g. of cooked liver per diem, with generous amounts of fruits and vegetables containing 5 to 10 per cent. of carbohydrate, together with red muscle meat. The total

[1] Jour. Amer. Med. Assoc., 1927, lxxxix., 759.

fat in the diet is low, not exceeding 70 g. a day. Sugar is diminished and concentrated carbohydrate and milk are not included to the exclusion of other foods. The cooked liver may be served in any way that pleases the patient, provided that excessive boiling is avoided. It is suggested that mammalian liver is preferable to that of birds, whilst kidney can occasionally be given as a substitute. A good many patients have preferred to take the liver in the form of raw pulp, and it is suggested that it has its maximum value in this form. 180 g. of such pulp divided into two portions and taken mixed with orange-juice has been found a useful prescription in some cases, whilst in others—especially those in which the patients were very ill and subject to nausea—it was found desirable to administer it through a stomach-tube. It is considered advisable to continue this treatment long after the blood-count has become normal, although a good many cases have remained well in spite of reducing the dose to 150 g. three times weekly.

The assessment of therapeutic benefit in pernicious anæmia must be regarded as exceedingly difficult because, whether treated or left alone, the patients have a tendency to improve markedly from their worst period, although they almost invariably suffer successive relapses, which finally lead to a fatal termination. Caution is therefore necessary in ascribing improvement to any remedy which has been administered. Published and unpublished accounts of the MINOT-MURPHY treatment suggest that with it improvement is more rapid and relapse postponed longer than with any other form of treatment observed during recent years. It is clearly impossible, as its authors themselves emphasise, to say whether this treatment is of permanent value until five or more years have passed; there can, however, be little doubt that the method is one worthy of widespread adoption in order that a valid conclusion may be drawn without unnecessary delay. So much for the observations themselves. The reasons put forward by Dr. MINOT and Dr. MURPHY for the success of their treatment are:—

1. The recognition of the similarity of many symptoms and signs of pernicious anæmia to those of pellagra, sprue, and beri-beri.

2. The observation "that patients with pernicious anæmia have often taken an abnormal diet for many years, noticeably one with a deficiency of red meats and an excess of fats particularly derived from dairy products and pork."

3. The geographical distribution of the disease.

4. The knowledge that secondary anæmia is frequently associated with a faulty diet.

5. The fact that patients with pernicious anæmia often had better health "when placed on a well-balanced and high caloric diet containing excess of nitrogen."

We doubt whether these reasons will make any great appeal to those with wide experience of the disease. In the same journal will be found an account [2] by Dr. K. K. KOESSLER and Dr. S. MAURER, of the University of Chicago, of the results of treating pernicious anæmia with a diet of high caloric value and rich in vitamins. Their report covers 40 patients who have been treated during periods ranging from six months to two years. No definite statistics are given concerning the total results save that all the patients, with one exception, are alive and in good health with a normal blood picture. Liver in liquid extract form is part of the diet in many cases, and these authors also lay stress on the faulty diet which is presumed to have preceded the onset of the disease. In contrast to the Boston school, the Chicago observers state that a low fat-content is not justified and large amounts of cream, butter, milk, and cod-liver oil are advised. The efficacy of liver and kidney is considered due to the high content of vitamins A and B in these organs. It is clear that we are here faced with a dietetic régime largely empirical, in which the presence of a considerable quantity of liver is the one outstanding feature.

A further difficulty in assessing the effect of treatment in these cases is the fundamental difficulty of diagnosis. It is true that in this country pernicious anæmia stands almost alone as the cause of really severe anæmia with disproportionate fall in the total number of red corpuscles. But—with the possible exception of the Price-Jones curve—we have no infallible test enabling us to say without doubt that this or that case is one of pernicious anæmia. As soon as successful treatment prevents relapse and autopsies become the exception, it is going to become almost impossible to decide whether the cases dealt with have really been examples of the malady described by ADDISON. A paper [3] by Dr. D. I. MACHT, of the Johns Hopkins School of Medicine, Baltimore, which also appears in the same journal, promises to be of value in this respect. He has tested the blood serum in many cases of this and other blood diseases, and believes that in pernicious anæmia the serum shows a toxic effect upon plant protoplasm quite different from that observed in the control cases. Briefly the method consists in placing seeds of *Lupinus albus* in blood serum, and measuring the inhibitory effect on growth exercised by the blood serum from pernicious anæmia cases. It is believed that the somewhat complicated procedure affords a genuine diagnostic test. Exposure of the serum to irradiation with ultra-violet rays is claimed to have the effect of making it less toxic, and the intravenous injection of substances such as eosin with subsequent ultra-violet irradiation is claimed to have given promising therapeutic results. The complexity of this latest inquiry is such as to invite a special caution, but in so far as it affords a possible new channel for diagnostic exactitude it will command attention.

[2] Jour. Amer. Med. Assoc., 1927, lxxxix., 768.

[3] Ibid., p. 753

SIR ARTHUR SHIPLEY.

THE late Master of Christ's College, Cambridge, was a well-known figure in College and University circles, and this he deserved in respect of his qualities as a just administrator and able organiser. He was known throughout the scientific world as a zoologist, and this in response to a mass of work partly of research and partly of literary character and all bearing the impress of unflagging industry. But beyond this SHIPLEY had impressed the world at large by the breadth of his sympathies, the keenness displayed in the wide range of his interests, and his gift for recording his impressions in a clear and attractive style. He began his career with the intention of becoming a doctor, but the Cambridge school of zoology, with MICHAEL FOSTER and his great pupil, FRANCIS BALFOUR as teachers, attracted him, and he never pursued the whole medical course, turning aside to the fascinating study of zoology. But for many years at Cambridge after his own promising undergraduate period was over, his zoological work brought him into contact with the medical school, so that many practitioners will remember SHIPLEY as an enlightening lecturer and a suggestive

writer and many more as indirectly an examiner. For SHIPLEY examined for the Natural Science Tripos for many years, during which it was usual for the medical candidate to take as his subjects those which he would require later for professional tests, while his text-book on the Zoology of the Invertebrata was in use for an extended period among undergraduates, during which time he was demonstrator of comparative anatomy in the University and lecturer on advanced morphology. SHIPLEY'S later work, neither the original researches which brought him the F.R.S. nor the joint editorship of the Cambridge Natural History, had any close relation to medicine, but such connexion as there was he availed himself of by contributions to Allbutt and Rolleston's "System," and by two useful and amusing books of parasitology entitled "Minor Horrors of the War." Probably few men of SHIPLEY'S age, not actually professional soldiers, appreciated better than he did the life of the man in the trenches, for he placed Christ's Lodge at the disposal of the medical authorities in 1915, and his study, in which he still contrived to work, became the sitting-room of a convalescent home always crowded with injured men. SHIPLEY'S pictures of the parasitology of the war were drawn from the life, and contained many medical lessons. In short, though not a doctor, he was one to whom our profession owed a real debt.

Annotations.

"Ne quid nimis."

THE PROLONGATION OF HUMAN LIFE.

TEN years ago a new precedent was created in the publication of the Registrar-General's decennial supplement, the preparation of its life-table portion being entrusted to Mr. George King, F.I.A., instead of being done by the staff of the General Register Office. That report was invaluable not only for the multiplicity of the local and national life-tables given in it, but also because it made it possible to compare life-table data for the periods 1901–10 and 1910–12 by means of exactly comparable data (because calculated on a uniform basis) for earlier periods in our national registration history. The present life-table report [1] has been prepared by Sir Alfred Watson, the Government actuary, who happily has adopted in the main Mr. King's technical methods, thus preserving that accurate comparability with earlier periods which it is extremely important to maintain. The present differs from previous life-table supplements in containing no life-tables giving the average experience of 1911–20. The reason for this at once appears. The Great War disturbed the natural course of life, and the events of the decennium as a whole would have little value as a measure of national vitality. Apart from this, the plan of taking the vital statistics of the three years, 1920–22, which centre around the census year, offers great practical facilities and gives us a measure of national vitality of greater current interest than one dealing with an already obsolescent experience.

Sir Alfred Watson has given himself a more limited scope than his predecessors as regards variety and number of life-tables; and we should also have welcomed a fuller commentary on the tables given from his competent pen. Subject to these slight regrets, the report is one which should be studied by all interested in the national health. In a subsequent special article we shall attempt to give some of the most important results of his work. As Sir Alfred Watson points out, the most useful tests of vitality are (*a*) the rate of mortality of different ages; (*b*) the number of survivors, at different ages, of a given number born; (*c*) the expectation of life at different ages; to which may be added (*d*) the probability of surviving, say, ten years at any given age. The death-rate in age-periods can be given without constructing a life-table, and nothing detracts from its supreme importance. The number of survivors beyond a given age out of a given number born, like the expectation of life at any given age, represents in a life-table the summarised experience of many ages; while the number of survivors at the end of any ten years of life out of a given number beginning those ten years, like the corresponding death-rate represents the vitality in that particular period.

The expectation of life, although in some respects not so useful a measure as the others named above, has been so long used, that it may be well to give in this article a few figures under this heading, leaving for later consideration the remainder of the report. If the English Life-Table No. 7 (experience of 1901–10) be compared with the English Life-Table No. 8 (1910–12) and with the English Life-Table No. 9 (1920–22) at four ages of life, the following result is seen:—

Expectation of Life.

Year.	Males. Age.				Females. Age.			
	0	20	40	60	0	20	40	60
1901–10 ..	48·5	43·0	27·0	13·5	52·4	45·8	29·4	15·0
1910–12 ..	51·5	44·2	27·7	13·8	55·4	47·1	30·3	15·5
1920–22 ..	55·6	45·8	29·2	14·4	59·6	48·7	31·9	16·2

On an average a male child born during 1920–22, on the basis of the experience of mortality in those years, may expect to live 7·1 years longer than a male child born in 1901–10, the difference for a female child being 7·2 years. Similarly, a young man, aged 20, in the more recent period can expect to live 2·8 years longer and a young woman 2·9 years longer than in the earlier period; and even when the age of 60 is reached a male born in the later period can expect on the basis of the experience of 1920–22 to live 0·9 year longer, and a woman born in the same period can expect to live 1·2 years longer than one born in 1910–20. The preceding statement illustrates the value of this function, the expectation of life, in summarising in one figure the entire experience of life subsequent to a given age, and for this reason its use will doubtless be continued. But it does not show clearly at which part of life the gain has been secured; and for this purpose either death-rates for age-periods or the probability of living, say, ten years, are required. To the use of these tests we propose to return.

THE CLEAN MILK PROBLEM.

MILK and green vegetables, says Sir George Newman,[1] are of the greatest importance in any practical attempts to arrive at a satisfactory diet; they are protective foods and make up for the deficiencies of articles such as bread, sugar, fat, pulses, and potatoes, which are relatively cheap and therefore form the staple nourishment of our population. Unfortunately, milk and green vegetables are not consumed as largely or as widely as they should be. Vegetables are dear—although they could be cultivated in abundance—because the means of distribution to our cities are so faulty. Milk also is expensive, and for this and other reasons its consumption is astonishingly small. The amount taken daily in England and Wales is estimated at about one-quarter of a pint per head of population, and it is obvious, in the light of recent experiments on growth and nutrition, that the national physique

[1] The Registrar-General's Decennial Supplement, Part I. Life-Tables. 2*s*.

[1] Annual Report of the Chief Medical Officer of the Ministry of Health for 1926, p. 185.

would benefit if it were considerably increased. One of the factors that would promote such an increase is confidence in the purity of milk and in its keeping qualities; in other words, a cleaner supply would bring about a greater demand. And although the medical profession could and should do much to popularise milk as a food, it has also a duty, as Prof. F. T. G. Hobday shows in an article on page 738, to encourage all attempts being made to ensure its purity. Milk ought to be clean, and would soon become so if the profession were to use its influence in this direction.

The greatest difficulty is to free the milk-supply from tubercle bacilli. Sir John McFadyean, speaking at Torquay the other day, said that there is hardly one of the 230,000 herds in the country which does not contain an infected animal, whilst Prof. Hobday quotes an estimate that the number of tuberculous cattle is nearly a million. From this it is obvious that the immediate remedy cannot be wholesale slaughter, but the magnitude of the problem need not provoke despair. By regular inspection of herds it is possible to detect nearly all the animals which are infective. Under the Milk and Dairies Order and the Tuberculosis Order county councils are expected to control the diseases of dairy cattle in their areas, and a certain number have started routine periodical inspection of these animals by veterinary surgeons. This is likely to have far better results than any half-measures, and an active policy is essential. The Tuberculosis Order certainly cannot be trusted to put things right by itself, for the effect of merely offering compensation to those who own infected cows is to allow ignorant or unscrupulous farmers to delay notification until their animals have reached the terminal stages of the disease. As Dr. William Savage has forcibly argued in our columns,[2] the Order permits them to claim compensation after allowing their cows to disseminate disease, both to human beings and bovine contacts, over a long period, whereas it ought rather to inflict a penalty for failure to notify disease as soon as it is suspected. The early symptoms and signs are admittedly equivocal and diagnosis at this stage is a matter for veterinary surgeons. The services of these experts, therefore, should be freely at the farmer's disposal, so that he has no reason or excuse for inaction. At present, even when a case of open infection has been found, there is little or no inducement to the owner to have the rest of his herd examined.

The removal of animals with obvious tuberculosis is both valuable and necessary, but it is even better to get milk from herds which have no infection at all. Steady progress is being made in the production of tubercle-free milk, and in 1926 there were 252 herds, comprising 9100 dairy cows, supplying pure milk of this kind, which is labelled either Certified or Grade A (tuberculin tested). We have previously discussed[3] the advantages and disadvantages to the farmer of keeping cattle which do not react to the tuberculin test, and now need only repeat the statement that the greatest disadvantage is the absence of a market for the milk which they produce. Prof. Hobday shows that at Reading, thanks to the admirable work of the National Institute for Research in Dairying, an adequate supply of milk from tuberculin-tested cows is retailed at prices only a little higher than the ordinary, and it is certain that a public demand, stimulated by the medical profession, would lower these prices still further. People who can afford pure milk ought to buy it. The attempt to secure real cleanliness, although made by comparatively few milk-producers, has already done much to raise the standard of production in dairies which have not themselves begun to supply graded milks. As "Dairy Farmer" says in his letter on page 740, the farmer is finding more and more that scientific methods are not only patriotic but profitable.

[2] THE LANCET, 1927, i., 722.
[3] THE LANCET, 1926, ii., 398.

THE JEWISH HEALTH ORGANISATION OF GREAT BRITAIN.

A WORLD Union for Preserving the Health of the Jews, which bears the abbreviated title of "OZE," was founded in 1912 by a group of Jewish physicians in St. Petersburg and was reorganised ten years later in Berlin when branches were established throughout Europe. In Eastern Europe, where a succession of disasters has shattered the health of the Jewish community, the work of the Union has largely been in the nature of relief of distress and the treatment of epidemic disease, but in Great Britain, where conditions have been happier, the programme of the Organisation has taken on more of a preventive character. The aims and methods of the Organisation in this country may be briefly stated as (1) to raise the standard of the physical health of Jews in Great Britain; (2) to supervise the sanitary conditions of Jewish homes, schools, and workshops, by way of supplementing the work of local authorities; (3) to collect statistics concerning the expectation of life, anthropometry, and pathology of the Jewish community; (4) to publish and distribute literature on health topics; (5) to organise lectures on health and to arrange for a museum of hygiene. All these objects have already been to some extent achieved: the Saturday evening lectures held for four winters at the Whitechapel Art Gallery have been widely attended; the various Jewish burial societies have agreed to supply monthly returns of deaths, and over 50,000 death-records have already been collected and collated with a view to determining the prevalence of cancer; 2000 children attending Jewish evening schools have been examined for their type of visual defect; and a report is now ready and will be published shortly on the comparative intelligence of Jewish and non-Jewish school-children, 2000 of whom between the ages of 8 and 14 have been tested. The Council of the Organisation has also been investigating the curious prevalence of left-handedness among Jewish children as compared with non-Jewish. The latest effort of the Organisation is to open a clinic for nervous and defective children on a small experimental scale at the Jews' Free School where the milder disorders of personality and behaviour are to be investigated with a view to their constructive treatment. The heavy financial responsibilities so incurred are met entirely by voluntary contributions, and an appeal for support has been issued signed by prominent members of the Jewish community. The hon. treasurers of this appeal are Lord Rothschild and Sir Samuel Instone, to whom donations may be addressed at 4, Upper Gloucester-place, London, N.W. 1.

MEGALOCOLON IN INFANCY.

DILATATION of the colon in infancy may be due to definite narrowing of the intestine or anal canal or may occur without any sign of stricture. The latter condition, known as Hirschsprung's disease, has been attributed to spasm and muscular incoördination, but these terms are not very exact and the underlying mechanism is not fully understood. Dr. Joseph Brenneman has recently described[1] six cases of megalocolon in early infancy which he has observed during the last 16 years. The patients were first seen at ages between 2 weeks and 3 months; most of them vomited and all of them had obstinate constipation and distended abdomens. In five of them it was found that there was a firm constricting ring with a sharp edge 2–3 cm. from the sphincter ani. (In the sixth case the distance was not measured.) The obstruction offered definite resistance to the finger but yielded gradually to digital dilatation, and although at first it was often difficult to insert even the little finger the resistance was overcome by considerable slow pressure and in time the index-finger could be used. Treatment by this method for severa

[1] Jour. of Amer. Med. Assoc., August 27th p. 662.

weeks led to recovery in four of the cases; the distension disappeared, the bowels became regular, and three months later they were apparently cured. In one case the stricture was relieved, but the late result is not reported, whilst in one the baby died. The latter case is particularly interesting, because at autopsy there was no sign of stricture although a tight ring with a sharp edge had been felt during life. Dr. Brenneman considers that these six cases are an example of a congenital anomaly identical with more severe malformations in this region but very restricted in extent. As a result of failure of the descending mesenteron to fuse with the ascending proctodæum a membrane may be formed resembling a hymen and having a central aperture. The consistence of the obstructing membrane depends on the number of layers which form it. He comments on the fact that most of the recorded cases of stricture have been treated surgically, the patients often being people of considerable age, and whilst agreeing that for anal obstruction surgery is often the only hope, he suggests that many constrictions can safely be treated and cured by dilatation.

MENTAL DISORDER IN SCOTLAND.

COMPETITION is as valuable a spur to progress in medicine as in commerce, and it is of interest to compare the annual report of the General Board of Control for Scotland with that of the English Board, reviewed in our columns last week (THE LANCET, Sept. 24th, p. 677). The Scottish Commissioners do not enter into that full discussion of the situation which makes such interesting reading in the English report, and the volume is largely taken up with statistics and tables. Although the preamble deals mainly with the problem of the mentally defective, Scotland does not appear to be so much concerned with the difficulties of ascertainment and accommodation. The chief anxiety seems to be the state of public opinion, as stress is laid on the desirability of institutional training and the fact that certified defectives are periodically reconsidered with a view to release. The total number of defectives on the register is 2764. The English Board regards 1 per 1000 as a very conservative estimate of the defectives in our population, and as there are nearly 5 million people in Scotland, it is evident that either the proportion of defectives is very much lower than in England or else many have not yet been "ascertained." A large number are still unsuitably detained in institutions for the insane and the colony system is in its infancy. There is a colony at Waverley Park for 110 girls and excellent progress is reported in developing the patients' capacities. The colony is the result of voluntary effort, and to the splendid work of the Scottish Association of Women Citizens is due the purchase of 750 acres by the Royal Scottish Institution at Larbert for another industrial and farm colony for adolescents. There are 11 other certified institutions and 1000 patients are in private dwellings. The increase in defectives registered during 1926 was only 140. The Board is carefully watching the fate of sufferers from encephalitis lethargica, for whom there are ideal observation wards at the Stobhill General Hospital. The label, "post-encephalitic mental defect," is deprecated, on the ground that such patients may still have a chance of complete recovery if properly and actively treated.

At the beginning of the year there were 18,580 insane persons under official cognisance, including 68 criminal lunatics at Perth, and 45 imbeciles, not certified under the Mental Deficiency Act, in training schools. The ratio to the population corresponds with that of England. In poor-houses there were 1090 and in private dwellings 1718. The English Commissioners constantly plead for more extended use of those sections of their Act which permit the transference of harmless incurable patients from institutions which are or should strive to be mental hospitals, to private guardianship and Poor-law wards. In this respect Scotland, with nearly one-sixth of its insane population outside the asylums, is nearer the ideal than England. The report regrets the decrease that has occurred since the war in the number of boarded-out lunatics. This decrease is partly due to economic factors; higher agricultural wages made it more difficult to find guardians in the country and the increased cost of living made city Poor-law authorities unwilling to take patients at the low board-rate. With the return to normal conditions the Commissioners hope to get more patients boarded out; maintenance is cheaper outside than inside an asylum, and there can be no doubt that aged senile lunatics are far happier sharing a "home" atmosphere, however humble, than in the best of institutions. This provides no argument against certification, however, for the report notes that they are generally better cared for by strange guardians than by their relatives.

In sharp contrast to the year's increase of 2743 in England, Scotland actually showed a decrease of 90 in the number (2304) of persons certified for the first time during 1926. The number of voluntary patients admitted to mental hospitals during the year was 628, nearly double the average figure for the ten preceding years. The Crichton Royal Institution achieved, in the second six months, the distinction of admitting 17 more voluntary than certified patients. The death-rate for the year was 8·3, the recovery-rate 35·9. Both figures show improvement on those of 1925, and are comparable with the English figures. The Scottish death-rate remains a little high. The average standard of care and treatment in the mental hospitals is excellent, as we have noted in considering them individually under the heading of "Mental Hospital Reports." There are seven Royal asylums, 21 district, and two private asylums. One of the last is a new house for Roman Catholic ladies opened last year by the Order of Augustinian Sisters; it has at present five voluntary boarders. Fourteen poor-houses have lunatic wards. There were only four suicidal deaths during the year. In 1926, 98 patients were sent out on probation; of the 48 whose period expired during the year, 17 were finally discharged as recovered. Less use seems to be made of this important trial trip system than in England. Despite the gratifying advances in treatment year by year, the dominant note of the English report is one of anxiety and urgent need for further efforts. From this distress the Scottish report is free.

LEGAL AID FOR PRACTITIONERS.

THE annual general meeting of the Medical Defence Union was held on Saturday of last week at the Royal Bath Hospital, Harrogate. It is well that the Union should meet from time to time outside the metropolis, for it is in the more rural areas that the practitioner is most in need of legal help and least likely to obtain it, except at the hands of a central organisation. No doubt north country practitioners are as able as any to conduct their own affairs without assistance, and may even cherish a not unreasonable belief in the combination of rugged integrity and judicious self-interest, but the solicitors to the Union point out that practitioners unaided are at the mercy of a section of the public who seem to think they are justified in raising any claim, however extravagant and unwarranted, to avoid payment of their just debts. By these persons members of the medical profession are regarded as fair game whenever some slight error of judgment, some momentary distraction of attention plays into their hands. The Union is precluded by its constitution from simply undertaking debt collection, but, so soon as a charge of negligence, threatened as a possible defence to a claim for fees, has been definitely recorded, the experience of the Union is at the practitioner's service. Every point in his favour is brought to the forefront, and every step taken to defeat the claim if unjustified, or, if justified, to ensure that the claim is equitably adjusted.

The policy of the Medical Defence Union is definitely against any settlement out of court, for, in settling a claim which has no merit, the practitioner is really giving way to blackmail and encouraging similar claims against his professional brethren. In five of the cases in which a claim for damages was brought or threatened during the past year, the only negligence alleged was the failure to direct the patient to have an X ray examination made of the injury for which he was under treatment. The Union therefore begs the practitioner, if only for his own protection, to advise his patient in any such case to undergo an X ray examination, and, if this is refused, to ensure that there is some evidence of the advice thus given, either in the form of a witness, a letter written at the time, or a note in the case-book. Even the practitioner with a case so clear and good that he readily obtains a verdict against his patient with costs is not thereby protected against financial loss. During the year the Union only recovered against the other side the sum of £30 9*s*. 6*d*. out of the many hundreds of pounds to which it was entitled as the successful litigant. Indeed, the Finance Committee of the Union lays stress in its report on the fact that heavy legal costs are often incurred in the most successful cases, because, when the people who bring the action are possessed of no means, a verdict with costs affords no financial relief to the costs of the defence. This Committee invites attention to the cost incurred in defending six cases in 1926, amounting in all to £1821, while the amount paid in yearly subscriptions by these six members was only £77. It is impossible for the Union to insure itself against exceptionally heavy expenses from the payment of damages in any particular year; hence the value of a large reserve fund, and incidentally, the convenience of prompt payment of subscriptions.

The report also calls attention to the less spectacular portion of the Union's work—namely, the many times in which the solicitors sat as legal assessors to the General Secretary in arbitrations between members of the medical profession. Since its foundation the Union has aimed at promoting unity within the profession and discouraging intra-professional disputes. It has never advocated complete indemnity or protection for medical men, but merely that those who are doing their duty honestly and rendering their services to the best of their ability should have a reasonable measure of protection. The Union gives its members the assurance that no action can be brought against them without reasonable cause.

NURSES AND THEIR WORK.

A FORTNIGHT ago Dr. T. F. G. Mayer called attention in our columns[1] to the ill-effects that result from constant standing and asked why nurses should be kept perpetually on their feet when so often they might do their work better sitting. The two correspondents who replied to his letter last week[2] took different points of view. One of them, the matron of a large provincial hospital, thought that nurses must be getting rather tired of people taking up the cudgels on their behalf, and said that they were encouraged to sit at their work whenever possible. The other, also an authority on nursing, said that the matter called for serious attention; many nurses feared to sit lest their patients should think they were relaxing unnecessarily, and it would be a great help if in giving directions the medical man would indicate that certain treatment would be better carried out while sitting, thus reassuring the patient and training the nurse to conserve her strength. This seems to us an excellent suggestion. It is quite true that in past years there was much stiffness and unnecessary discomfort to be borne by nurses and there are doubtless survivals still. A few of those who suffered greatly from discipline are apt to insist on such rigid behaviour from their subordinates. It would be wrong, however, to suppose that in the training hospitals of to-day nurses are kept on their feet unnecessarily. If there is something to be done at which a nurse can possibly sit she will probably remain glued to a chair as long as she can, and this with the complete approval, and probably at the request, of the reigning sister. On the other hand, aching feet are ever present, especially among the recruits, and this is, of course, because they hardly ever have time to sit down. Whilst the health of the nurses is carefully considered in most hospitals, it is none the less true that the departure of one of them from a large ward where the work is heavy throws a big extra load on those left behind; for there is seldom the chance of a "relief" coming to take her place. Thus it is unusual to report any but the most incapacitating indisposition, though this state of things is naturally contrary to the expressed wishes of the authorities. Holidays have to be deferred and a given date can seldom be depended on, because in most hospitals, however large, there is not an extra staff sufficiently large to fill all gaps, including the unforeseen. Nothing can prevent nursing from being a hard life; from its very nature there is always something to be done and something which will not wait. But the present situation could be improved if there were more nurses. "Matron" shows this when she says that a nurse is practically certain of being able to obtain another post. In big London hospitals the shortage is largely due to lack of accommodation, for there is little money available for building. Nevertheless, things have altered much more since the war than is generally supposed, and in the best hospitals nurses now have good food and rooms, a fair amount of recreation, and—generally speaking—excellent care when they report sick. The need is for a greater number of enthusiastic girls to take up this form of work, which during the years to come should offer more and more of the ingredients of happiness.

[1] THE LANCET, Sept. 17th, p. 636.
[2] Ibid., Sept. 24th, p. 687.

EXAMINATION OF TUMOURS OF THE BREAST.

Prof. John Fraser, of Edinburgh, delivered to the American College of Surgeons in 1926 an address, recently printed,[1] containing some observations on carcinoma of the breast based on the examination of sections made on the key-block system. The breast is divided into two portions through the area which is to be examined. From the surface of one portion a celloidin "whole" section is cut, and this will give the general topography of the gland. From the corresponding surface of the other portion a series of numbered blocks of smaller size are cut in paraffin; these will give the finer histological details of every portion of the "whole" section. The main points which emerge from the examination of 50 mammary glands are the following: (1) Any classification of malignant breast tumours is unsatisfactory because it is found that often one "whole" section exhibits in different parts several different types. The varieties known as "scirrhous" and "encephaloid" may be found side by side, and these terms thus become, more than ever, of academic significance only. (2) Prof. Fraser has been greatly struck by the fact that the epithelium in the ducts and acini for some distance around the malignant growth shows a change in the direction of proliferation, apparently as the result of exposure to a fluid-borne or secretion stimulus. This may be derived from the malignant focus or may be responsible for both malignant and non-malignant changes, and the realisation of this affects for Prof. Fraser his whole conception of the pathology of malignant disease. This observation is, however, not quite new. Attention was drawn to it by Mr. Geoffrey Keynes in a Hunterian lecture delivered in 1923.[2] This observer approached the problem from another angle, studying first the changes seen in "chronic mastitis" and suggesting that a secretion stimulus was probably responsible

[1] Surgery, Gynecology and Obstetrics, 1927, xlv., 266.
[2] British Journal of Surgery, 1923, xi., 89.

for these. The distant epithelial changes surrounding a carcinoma seemed, then, to afford some confirmation of the first idea. It seems possible that much may yet be learned of this aspect of the pathology of malignant disease from the study of the effect of various chemical agents on the cells of living tissue cultures.

SOCIAL HYGIENE AND THE EMPIRE.

THE British Social Hygiene Council, which was formerly known as the National Council for Combating Venereal Diseases, has organised another imperial conference to be held at the Caxton Hall, Westminster, from Oct. 3rd to 7th. The proceedings will open on Monday morning with a welcome to delegates and addresses by High Commissioners for the Dominions and representatives of Government departments. The principal subjects to be considered are Social Hygiene in India and the Crown Colonies, Protectorates, and Mandated Territories, Seamen's Welfare in Ports, and Social Hygiene in its Medical, Educational, and Administrative Aspects. As is natural, a large number of medical men will take part in the discussions. Surgeon-Captain T. B. Shaw will give an account of the Incidence and Prevention of Venereal Disease in the Navy, Sir George Buchanan will speak on the Development of Welfare Work among Seamen, and Major R. B. Lloyd, I.M.S., will read a paper on the Wassermann Test in India. The section of the congress dealing with the medical aspects of social hygiene will meet under the presidency of Mr. David Lees, Mr. Kenneth Walker being the secretary. Colonel L. W. Harrison will speak on the Modern Treatment of Syphilis and its Results, and Prof. F. J. Browne on the management of venereal disease at antenatal clinics. In other sections Dr. A. M. Fleming will describe venereal disease among the natives of Southern Rhodesia, and Dr. K. S. Wise will read a paper on methods of propaganda in Trinidad. Dr. Crichton Miller is to deal with the scientific foundations of character training, whilst on the last day of the congress, on Friday, there will be a discussion on the powers and responsibilities of local authorities in the venereal disease campaign, in which Dr. J. R. Kaye, Dr. A. S. M. Macgregor, and Dr. R. M. F. Picken will take part. After a paper on venereal disease in New Zealand, by Dr. Bernard Myers, the congress will close with a discussion on the problem of congenital syphilis in children of school age. Among the special arrangements made for participants will be visits to treatment centres, and the exhibition of films. The amenities will include a congress dinner, at which the Minister of Health will be present. Fuller particulars may be had from the Secretary-General at Carteret House, Carteret-street, Westminster.

INDICATIONS FOR CIRCUMCISION.

IN our last issue Mr. A. J. C. Hamilton and Mr. D. S. Middleton put on record their observations on infants recommended for circumcision during a period of a year at the Royal Edinburgh Hospital for Sick Children. Over half of these patients were found to be suffering from dysuria due, they concluded, in a majority of cases, to ammoniacal dermatitis. They showed how under certain circumstances urine normal when passed becomes infected from the alimentary canal by a bacillus which liberates ammonia from the urea in the urine-soaked napkin. Thus a kind of ammonia fomentation is applied to the bathing-drawers area of the child and dermatitis results. This condition was found to be amenable to the very mild antiseptic action of boric acid when the napkins were impregnated with it; 103 cases of dysuria were treated by this method with "almost uniformly good results," and the number of circumcisions was reduced to half the usual total. Lack of cleanliness is admittedly the first cause of these eruptions, and the mothers of all patients suffering from them were instructed to change their babies' napkins "frequently." A series of control cases would be necessary to determine whether the boric acid is an essential part of the treatment; in the meanwhile, the boric treatment is commendable for its safety and easy application. It appears that the dermatitis which the authors describe is commoner in Scotland than in England, where dysuria in babies, as seen at out-patient departments, is commonly associated with congenital stenosis of the urinary meatus. True phimosis with sufficient stenosis to cause mechanical obstruction to micturition is very rare—there will be general agreement with the authors in this statement—but with true "pin-hole meatus" the case is otherwise. Diagnosis of this condition may be impossible before circumcision, and it is well to remember that dysuria is the commonest of the many symptoms due to stenosis. Regarding circumcision and its substitutes, it is clear that circumcision is no remedy for "ammoniacal storms," but neither is it a remedy for many of the conditions for which it is so lightly performed. It may, in fact, be admitted that the operation is often done unnecessarily. But because the foreskin protects the glans penis from such an outrage against nature as an ammonia fomentation, it does not follow that circumcision stands condemned. The authors' substitute for circumcision when there are adhesions between the glans and the prepuce is probably well known to many careful mothers and nurses and has a definite place in nursery hygiene. None the less, we are sufficiently old-fashioned to think that a small boy should give the very minimum of attention to his external genitalia. That minimum is necessary for cleanliness, but both cleanliness and "unawareness" are, in our view, attained in many children most quickly and most permanently by the ancient operation of circumcision. There are two principal anatomical reasons for advising circumcision in babies—viz., a tight foreskin and a long foreskin. These indications, however indefinite and unscientific, are found to be useful guides in actual practice.

Summer Time, which commenced on April 10th, will cease on Sunday next, Oct. 2nd, at 3 A.M., when the clock will be put back to 2 A.M. The hour 2–3 A.M. Summer Time will thus be followed by the hour 2–3 A.M. Greenwich time. In France the change occurs eight days later.

AT the Royal College of Physicians of London the Bradshaw Lecture, entitled "The Pathology of Pneumonia," will be delivered by Dr. J. F. Gaskell on Nov. 3rd. Dr. Herbert Spencer will give FitzPatrick Lectures on Nov. 8th and 10th, taking as his subject "The History of British Midwifery." Dr. P. C. Varrier-Jones has chosen for his Mitchell Lecture on Nov. 15th "Village Settlements for the Tuberculous." The Lloyd-Roberts Lecture will be delivered at the Medical Society of London by Lord Hewart on Nov. 16th, his subject being "Criminal Law and Insanity." To all of these lectures any member of the medical profession will be admitted on presentation of card. The time of the lecture in each case is 5 P.M.

UNIVERSITY OF LONDON: *University College.*—A course of six lectures on Vision will be given at the College by Mr. R. J. Lythgoe, at 5 P.M., on Mondays and Wednesdays, from Oct. 10th to 26th inclusive. Mrs. P. M. T. Kerridge will give a course of three lectures of Hydrogen-ion Concentration at the College, at 5 P.M. on Fridays, Oct. 14th, 21st, and 28th. A lecture entitled "The Static Reflexes of Magnus: How Animals get right-way-up and keep so," will be given by Prof. A. J. Hall, F.R.C.P., on Tuesday, Oct. 18th, at 5 P.M. (cinematograph illustrations). Admission to these lectures is free without ticket.

DONATIONS AND BEQUESTS.—Mr. Herbert Augustus Hance, late of the King's Remembrancer's Department, Royal Courts of Justice, among other bequests, left £2000 to the Royal Victoria Hospital, Folkestone, to endow two beds. Certain residues of the property also go to the Royal Victoria Hospital.

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CCXLIII.—THE TREATMENT OF INSOMNIA.

I.—General Considerations.[1]

Insomnia, or the inability to secure a sufficiency of normal physiological sleep under favourable external conditions, is often one of the most exacting problems which confronts the physician. A sufficiency of physiological sleep denotes an amount which is normal and usual for a particular individual, although the actual duration and depth of sleep may vary with age and personal constitution. Insomnia implies not only inadequate sleep, but also failure to obtain sound and restful sleep. Three types of insomnia may be distinguished: (1) sleep delayed in onset; (2) sleep interrupted by disturbing dreams or "starts"; and (3) sleep normal in onset, but the sleeper awakens in the early hours of the morning and is unable to sleep again (internocturnal insomnia). Two of these types may be combined in the same patient.

In dealing with any case of insomnia, it is essential to regard the sleeplessness merely as a symptom and to use every endeavour to ascertain the exact nature of the underlying disturbance responsible for its production. Cases of insomnia have been differentiated into two groups: (1) secondary insomnia, in which the loss of sleep results from some form of bodily discomfort—e.g., pain, cough, dyspnœa, &c.; and (2) primary insomnia, in which no definite physical cause for the symptom can be found. In the latter, however, the sleeplessness almost invariably results from some psychical cause, often an alteration in the affective or emotional state of the patient (anxiety, fear, depression) which acts as a persistent mental irritant preventing the onset or interrupting the tranquillity of sleep. It is probable, indeed, that no true primary insomnia ever occurs.

Ætiology.

From the ætiological standpoint the main factors responsible for insomnia may be classified as follows:—

(A) *Physiogenic causes.*—Insomnia resulting from physical discomfort or organic disease.

(1) *Pain.*—Neuralgia, neuritis, arthritis.

(2) *Dyspnœa.*—Cardiac disease, asthma, nasal obstruction.

(3) *Cough.*—Bronchitis, phthisis.

(4) *Frequency of micturition.*—Cystitis, prostatic enlargement, disseminated sclerosis.

(5) *Pruritus.*—Skin diseases.

(6) *Pyrexia.*—Acute specific fevers.

(7) *Gastro-intestinal disturbances.*—Flatulence, palpitation, colitis.

(8) *Circulatory disturbances.*—High blood pressure, cold feet (peripheral stasis).

(9) *Toxic states.*—Chronic sepsis, alcoholic delirium.

(10) *Organic cerebral disease.*—Encephalitis lethargica, meningitis, dementia paralytica.

In some diseases insomnia may result from a combination of several of the above factors—e.g., in pneumonia from cough, dyspnœa, and toxæmia, or in typhoid fever from gastro-intestinal disturbance, toxæmia, and pyrexia.

(B) *Psychogenic causes.*—Insomnia in which no definite physical basis is found.

(1) *Anxiety states* (anxiety neuroses and anxiety hysteria).—Mental conflicts, apprehensions, disturbing dreams.

(2) *Neurasthenia.*—States of fatigue.

(3) *Hysteria.*—Auto-suggestion, somnambulism.

(4) *Compulsion neuroses.*—Obsessions.

(5) *The psychoses.*—Manic-depressive states, paraphrenia.

(6) *Dementia præcox.*

(7) *Confusional states.*

[1] The concluding portion of this article—Therapeutic Measures—will appear next week.

Clinical Aspects of Insomnia.

In dealing with any patient complaining of sleeplessness, a full physical examination is imperative at the outset. Apart from cases in which the symptoms point to an obvious cause—e.g., pain, dyspnœa, pruritis, frequency of micturition, &c.—the digestive, circulatory, respiratory, and excretory systems must be examined, the blood pressure taken, and, lastly, careful attention devoted to the investigation of the nervous system in order to exclude the presence of organic disease. Insomnia is often an early symptom of organic nervous conditions; for instance, in spite of what the name implies—encephalitis lethargica frequently begins with sleeplessness on several successive nights or, preceding the lethargy, insomnia may be associated with mild nocturnal delirium. Inability to sleep may also persist long into convalescence, especially in the Parkinsonian type of the disease, while it is quite common to meet with alterations in the sleep rhythm (the so-called "sleep-reversal") in which the patient is able to sleep quite well during the day, but insomnia occurs at night. The writer has met with several cases in which, the patient apparently having recovered from the encephalitis, a reversal of sleep rhythm was the only remaining symptom. Again, in general paralysis of the insane (dementia paralytica), insomnia frequently occurs in the early stage of the disease and may or may not be accompanied by excitement or exaltation. Later, in many cases, sleep tends to become excessive and even narcoleptic attacks may occur. Of the diseases of the nervous system associated ætiologically with alcohol, delirium tremens is accompanied by absolute sleeplessness in the early stages, while in alcoholic pseudoparesis insomnia is early and pronounced.

Anxiety.

When all physical factors have been definitely excluded and the conclusion reached that the insomnia is one of psychogenic origin, the physician's duty is to investigate all possible causes of mental anxiety. Consequently a full exploration of the patient's domestic, business, social, and sexual life is essential. A mental conflict is the basis of all cases of anxiety hysteria, in which insomnia is one of the most frequent symptoms. In such cases sleep is often disturbed by harassing dreams, usually associated with or symbolical of the factors giving rise to anxiety—e.g., the battle dreams of war neuroses, &c. Later, sleep is also delayed, the patient frequently anticipating the recurrence of disturbing dreams and fearing to fall asleep. The explanation of these phenomena advanced by analytical psychology is that painful or terrifying experiences are repressed; during sleep, however, control over the repressed memories is relaxed and the patient dreams of them either in actual or in symbolical form. Sleep may also be delayed in onset by the conflicts of apprehension, grief, or of business and domestic worries. Anxieties which have been partially obscured by the ordinary occupations of the day, or by attempts at a process of conscious repression, will emerge with excessive insistence and will have full play while the patient lies waiting for sleep to come. Under such circumstances all doubts are exaggerated and all worries intensified; sleep may eventually supervene only to be interrupted by a startling dream in which the anxiety is reproduced with added intensity and the awakening accompanied by distressing emotional manifestations, such as palpitation and sweating. During the stage of semi-consciousness that actually precedes sleep, the patient is sometimes rudely aroused by an apparent vision of startling intensity (hypnogogic hallucinations), and usually connected with his mental conflict, although often in distorted symbolical form; sleep is thus further delayed, if not actually abolished for that night.

Neurasthenia.

Neurasthenia is a term that should be confined to the clinical entity characterised chiefly by rapid and undue fatigue on slight exertion, physical or

mental, and should not be confused with anxiety neurosis nor anxiety hysteria. In neurasthenia sleep is often good, although it is occasionally delayed in onset. Almost invariably, however, the patient awakes unrefreshed, and is often difficult to arouse in the morning. Sleep may be disturbed by nocturnal emissions. Overwork, in the absence of coexisting worry, is a rare and doubtful cause of insomnia. Most cases in which the symptom is attributed to this factor are examples of anxiety states, mild manic-depressive psychoses, or early dementia præcox. Complete insomnia—total sleeplessness on a succession of nights—is very rare, but may occur in association with neurasthenia. In women it sometimes follows the prolonged nursing of invalids, during which period the absence of regular rest has lowered the general health of the patient and destroyed the normal sleep-habit. As this form may endanger mentality, prevention is better than cure.

Hysteria.

Sleeplessness is occasionally a purely hysterical manifestation (conversion hysteria); in such cases the degree of insomnia is often much exaggerated, the patient taking a delight in telling people how little he or she sleeps. Apart from the fundamental psychoneurotic disturbance, hysterical insomnia develops as the result of auto-suggestion, and may disappear quite suddenly, only to reappear in another form—e.g., as hysterical aphonia, headache, astasia-abasia, &c. In some cases the actual origin of the sleeplessness has been physical—for example, pain, &c.—but the cause, having disappeared, the insomnia persists as a hysterical symptom. This occurrence is analogous to the paresis that sometimes persists in hysterical form following an organic paralysis due to nerve injury, the actual lesion, as shown by normal electrical reactions, having recovered. Somnambulism —though not strictly a form of insomnia—may also interrupt the otherwise normal sleep in hysterical subjects. As a rule, the patient has no recollection of somnambulistic acts when awake.

Hypochondriasis.

In hypochondrical subjects insomnia may become a veritable obsession and constitute a definite "compulsion neurosis," the patient believing that under any circumstances it is quite impossible for him to sleep. Apart from hypnotics such cases may require prolonged psycho-analysis to elucidate the cause, and even then relief may not be attained. Similar cases, however, will eventually sleep quite an adequate number of hours, but will continue to assert that they do not sleep.

The Psychoses.

Insomnia is frequently an early symptom in the psychoses, occurring in association with the depressed or excited mental condition of manic-depressive states, in confusional psychosis, dementia præcox, presenile depression, &c. Many examples of persistent insomnia associated with depression are in reality cases of manic-depressive psychosis. To the same class belong the instances of suicide attributed to sleeplessness, some of which if recognised earlier might have yielded to treatment. In such depressed states sleep is considerably delayed, the patient lying awake, tormented by melancholy and painful ideas; sleep may also be disturbed by confused dreams, and the patient awake early, fatigued and depressed. In mania, excitement interferes considerably with sleep, and some acute cases are almost completely sleepless. Milder cases suffer from delayed sleep and usually awake too early, although when actually asleep their slumber is often profound. Apart from depression, some cases of senile insomnia are due to flatulence and some to high blood pressure. Many of the aged, however, although sleeping only four or five hours at night, will take naps during the daytime, and so average an adequate amount of sleep in the 24 hours.

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Special Articles.

THE UNIVERSITY OF LONDON:
ITS PRESENT CONSTITUTION AND MACHINERY.

BY PERCY M. WALLACE, M.A. OXF.

II.*

THE Senate of the reconstituted University met for the first time on October 24th, 1900. Seven months earlier, very shortly after the promulgation of the new Statutes and Regulations, but actually in anticipation of their formal approval by the Queen in Council on June 29th, an arrangement had been concluded between the Government and the Senate of the old dispensation by which the head-quarters of the University were transferred from Burlington Gardens, where they had been housed since 1870, to the Imperial Institute Buildings at South Kensington. The main central portion of this structure, including the chief entrance, the Marble and Great Halls, the rooms in the tower, and the whole of the east wing, were appropriated to the use of the University; and the new Senate on entering upon office found at their disposal accommodation which it was hoped would prove adequate for their enlarged administrative needs and for the holding of a considerable proportion of their examinations.

Lines of Development.

Their first task was to complete their constitution as laid down in the Statutes and Regulations, so that the full machinery of the University might be set in motion without delay. Fortunately, the Senate contained a large proportion of men and women not only keenly interested in the problem confronting them but also intimately acquainted with the methods and details of University administration. The Chancellor, the Vice-Chancellor, and the Chairman of Convocation, statutory members of the three Standing Committees, were all Fellows of the University,[1] and in that capacity had for some years taken a full share in its government. There were ten other members who were Fellows; the sixteen representatives of the Faculties had all had responsible experience of academic administration in connection with the Colleges and other institutions at which they held their posts; and of the remaining members there were very few who were not similarly qualified in greater or less degree.

Committees were at once appointed to consider the most urgent problems, and in the course of the first eighteen months these were sufficiently dealt with to enable the University to develope fruitfully along the lines prescribed in the Statutes. But fresh requirements and opportunities continued to demand their attention, and have so continued down to the present date, with the result that the Senate now control an organisation far more extensive and elaborate than the Commissioners could reasonably have envisaged in 1900. From the nature of the case these developments have come into operation under varying conditions—sometimes independently, sometimes by a process of mutual reaction; sometimes owing to external benefactions, sometimes through the natural thrust of the normal work—and all that can here be profitably attempted is to indicate briefly the most important and significant items in the process of the evolution of the University during the past twenty-seven years. The summary that follows observes no strict chronological order, but deals with accomplished facts at the conclusion of the period under review.

* Part I. appeared in THE LANCET last week.

[1] Up to the date of reconstitution the Senate consisted of the Fellows; these now retain their title, but not their seats on the Senate.

In spite of the continued abstention of the four Inns of Court, the Senate resolved in 1905 to constitute the Faculty of Laws which the Commissioners under the Act of 1898 had reluctantly felt themselves unable to bring into immediate existence. Provision for instruction in this subject had increased during the proceding five years, and the first roll of the Faculty contained the names of eleven persons teaching at University College, King's College, and the London School of Economics. By this step, taken after prolonged consideration, and at the earliest moment which appeared to them justifiable in all the circumstances of the case, the Senate removed the most striking defect in the new constitution which the University received in 1900—the absence from its curriculum of adequate opportunity for the systematic and philosophical study of the various aspects of Jurisprudence, which has for many centuries been regarded as an essential feature of the Universities of western civilisation.

Incorporation of University and King's Colleges.

Within the first decade of its reconstitution the *personnel* and property of the University received two notable augmentations which of themselves did much to give it an established position as a teaching body. In 1907, after five years' negotiations, University College, founded eighty years before with the title "University of London," but receiving its Charter under its more restricted designation, abandoned its old independence and became incorporated in the University, its whole organisation being transferred to the direct control of the Senate, with the exception of such departments and endowments as belonged to or were held in trust for its Hospital and the Medical School attached thereto. These were placed under separate administrations, the Medical School becoming a School of the University in the Faculty of Medicine on the same lines as the other great medical schools of London, except that the University took over the control of preliminary and intermediate medical studies on the College premises. Three years later a similar scheme was adopted with reference to King's College (including King's College for Women, subsequently transferred from Kensington Square to the Strand, but not the Household and Social Science Department of that College, which retains its specially erected premises on Campden Hill); in this case the Theological Department was also excepted from the general incorporation, and still remains under the government of its own Council as a School in the Faculty of Theology.

It may conveniently be mentioned here that among other institutions under the direct control of the University are the Brown Animal Sanatory Institution,[2] Goldsmiths' College, the Francis Galton Laboratory for National Eugenics, the Bartlett School of Architecture, and the Institute of Historical Research.

More Recent Admissions.

Though applications by institutions for admission to the status of Schools have always been granted only after the most minute investigation of their condition, purpose, scope, government, resources, and equipment both personal and material, the following have since 1900 been added to this category (in some cases only in certain subjects or for limited periods):—Westfield College, the London Day Training College, and the School of Oriental Studies in the Faculty of Arts; the Household and Social Science Department of King's College for Women in the Faculty of Science; East London College in the Faculties of Arts, Science, and Engineering; the London School of Economics (already a School in the Faculty of Economics) in the Faculties of Arts and Laws; Birkbeck College in the Faculties of Arts and Science; the Imperial College of Science and Technology (comprising the old Royal College of Science, the Royal School of Mines, and the old Central Technical College of the City and Guilds of London Institute, now bearing the title City and Guilds Engineering College) in the Faculties of Science and Engineering; and in the Faculty of Medicine the London School of Tropical Medicine, the Lister Institute of Preventive Medicine, the Royal Army Medical College, the Royal Dental Hospital and School of Dental Surgery, the Naval Medical School of the Royal Naval College (Greenwich), the Maudsley Hospital, Bethlem Royal Hospital, and the School of Pharmacy. Of the original Schools in the Faculty of Theology, Hackney College and New College have been merged into one under the title Hackney and New College, and Cheshunt College has ceased its connection with the University in consequence of its removal to Cambridge.

It will be observed that some of these more recent "Schools" in the Faculty of Medicine have been promoted from the list of "Institutions" given last week; to that list there has been added (among others not of special interest to readers of THE LANCET) the National Institute for Medical Research.

Professoriate and Lectorate.

The stages by which the University Professoriate and Lectorate have been established and developed (these constitute almost entirely the roll of the Appointed as contrasted with the Recognised Teachers) are so various and complicated as to preclude precise and detailed summary in this place. A large proportion of these posts owe their creation to the benefactions of individuals or corporations having no direct connection with the University; many to endowments supplied by the governing bodies of its own Schools who undertook to provide, in suitable cases, the minimum salaries prescribed by the Senate in consideration of the appointment by the University of a Professor or Reader holding his or her commission direct from itself; in other cases the Senate have, in recognition of individual distinction, conferred one or other of these titles on existing members of the staffs of Schools or Institutions.

The total number of Professors at the present time is 169; of Readers, 88. Of the Professorships 53, and of the Readerships 14, are held, under the Senate, at Schools in the Faculty of Medicine (including for this purpose the Departments of the two Incorporated Colleges that provide instruction in preliminary and intermediate medical studies). Of the five Professors of Medicine, four—those holding their posts at the Medical Schools attached to the London, St. Thomas's, St. Bartholomew's, and St. Mary's Hospitals—are also the Directors of the Medical Clinics of those Hospitals respectively; the Professors of Surgery at the Medical Schools attached to University College and St. Mary's Hospitals are also the Directors of their Surgical Clinics; and the Professors of Obstetric Medicine at University College Hospital Medical School and of Obstetrics and Gynæcology at the London School of Medicine for Women are respectively the Directors of the Obstetrical Unit at the former and of the Obstetrical and Gynæcological Unit at the latter. There are also Professors of Anatomy at eight of the Medical Schools, of Morbid Anatomy at one, of Bacteriology at three, of Bio-chemistry at three, of Chemistry at three, of Embryology at one, of Helminthology at one, of Pathology at eight, of Pharmaceutics at one, of Pharmacology at one, of Physics at four, of Physiology at six, of Zoology at two; and Readers in Anatomy at one, in Bio-chemistry at one, in Biology at one, in Chemistry at one, in Histology at two, in Medical Entomology at one, in Medical Protozoology at one, in Pharmocognosy at one, in Pharmacology at one, in Physics at one, in Physiological Chemistry at one. In this enumeration, as in analogous cases, I have confined myself to the Schools in the Faculty of Medicine. But these will serve as illustrations, reflecting the greatest credit on all the parties concerned, of the confidence felt throughout the Schools of the University generally in the sympathy and intelligence which have

[2] This dates from pre-reconstitution days, having been founded in 1871, and may thus be regarded as the pioneer of research work within the University.

characterised the increasing control by the Senate of appointments to the higher posts on the staffs of independent organisations, jealous of their natural rights and proud of their honourable record.

Boards of Advisors.

This gratifying relation between the Senate and the governing bodies of the Schools in the several Faculties has been in great measure due to the establishment of what is generally considered to be one of the most efficient features of the administrative system of the University—the Boards of Advisors. These are, of course, not wholly a novel creation, but in the special form in which they have been constituted in this University they have met with exceptional success. The Regulations governing this matter are necessarily complicated, as in some cases the posts in question are not attached to any particular School or Institution, in others are so attached and the salary is provided by the University, in others are so attached and the salary is provided by the School or Institution itself; in others again it is a question of the conferment of the title of Professor or Reader on a man or woman who is already a Recognised Teacher on the staff of some School or Institution. But for the sake of illustration it will be sufficient to take the common case where the post is tenable at a particular School and the salary is provided, wholly or in part, by the University. There has in the first place been established a permanent (though periodically revised) body of External Experts, persons having no other official relation with the University—three for each of over fifty subjects of University study which correspond generally, but in more specified detail, with those that give their titles to the Boards of Studies enumerated last week and to be further mentioned below. For this purpose the Senate have been fortunate in securing, on the special nomination of the Boards of Studies, the co-operation of a very large number of the leading authorities on the several branches of study throughout the British Isles—many of them occupying Chairs at other Universities. When a particular post is to be filled, a "Board of Advisors" is appointed, consisting of the Vice-Chancellor, the Principal, the three External Experts in the subject concerned, and four persons nominated for this particular case by the School to which the appointee is to be attached. The Board so constituted is permitted to advertise the post or not as it thinks fit, and in recommending any person for appointment by the Senate is directed to have regard to his contributions by research to the advancement of science or learning, to his powers as a teacher, and generally to his eminence in his subject or profession. To put the matter more bluntly than could with propriety be embodied in the Regulations, the External Experts are relied upon to guarantee, in the case of each man reported as eligible, that his professional status is adequate for the post in question, and the colleagues with whom he will be most intimately associated have the opportunity of indicating among those so guaranteed the individual with whom they would find it most congenial to work. The report of the Board is sent simultaneously to the Academic Council and to the governing body of the School at which the post is tenable, finally reaching the Senate together with the reports of these two bodies; and no appointment is made without the concurrence of the latter, as the authority most directly concerned. This procedure is adopted with the appropriate modifications when the post in question falls under one of the other categories indicated above, or when the matter in hand is the conferment of a title rather than the appointment to a Chair or Readership. Other Regulations under this heading are designed to secure suitable conditions of tenure and adequate leisure, equipment, and assistance for the prosecution of research. The minimum salary for a whole-time Professor is £1,000, and for a whole-time Reader £500; but in many cases the salaries actually paid are considerably higher—thus, for instance, Professors at Medical Schools who are also Directors of Clinical Units each receive £2,000.

The original roll of Recognised Teachers was, as has been already stated, constituted by the Commissioners themselves with a total membership of 440 men and women. Many of these have in course of time been promoted to the rank of Appointed Teacher, though this category consists to a large extent of persons brought on to the University staff from outside. The total number of Recognised Teachers at the present time is about 860, of whom 362 are registered as holding their posts at one or other of the Medical Schools. Medicine thus—for reasons already given—retains its numerical preponderance in the *personnel* of the University. But, except for what may be for this purpose regarded as one-subject Faculties (Theology, Laws, and Music), the staffs of the Schools and Institutions generally have grown to a noteworthy degree during the past twenty-seven years. This increase has been in great measure due, not only to the natural ambition of the Schools to make provision for their ever more numerous students, but also—and this applies specially to the growth of the Professoriate and Lectorate staff—to the intensified specialisation of the several subjects of the University curricula. Posts are now created in departments and even sub-departments of branches of study which until a comparatively recent date were deemed susceptible of adequate treatment by one man.

Increase in Boards of Studies.

This tendency, which is properly and indeed inevitably consequent upon the continuous cleavage of all progressive investigations, has been increasingly reflected in the number of the Boards of Studies. It will be remembered that the Commissioners had recommended the early constitution of thirty-two specified Boards. Of these it was decided to postpone for the present those in Archæology and Palæography, Laws, Pharmacy, Ethnology, and Marine Engineering and Naval Architecture; but the other twenty-seven were constituted with all speed—actually on December 19th, 1900, within two months of the first Meeting of the Senate under the new dispensation. The total membership of these twenty-seven original Boards was 374 (305 Teachers and 69 external experts). Year by year, as the development and specialisation of the work of the University demanded, the existing Boards have been enlarged, re-cast, and divided, and new Boards have been created, until at the present time the Register contains no less than forty-five, with a total membership of 1196 (986 Teachers and 210 external experts).[3] It is both interesting and significant to note the precise nature of these adjustments of and additions to the ultimate sources of expert guidance in the complicated fabric of the University. The Board of Laws was constituted in 1905, contemporaneously with the corresponding Faculty to which reference has been made above. Three of the others specified by the Commissioners have also been established—Pharmacy, Archæology and Palæography, and Ethnology, though of these the second bears the sole title Archæology and the third has been re-named Anthropology. Marine Engineering and Naval Architecture is thus the only definite "subject of University study" designated by the Commissioners as requiring a separate Board of Studies which has not yet found its place in the London curriculum. On the other hand, Mediæval and Modern Languages and Literatures has proved, both in scope and in treatment, too extensive an area for effective control by one Board, and has accordingly been subdivided under three, which deal respectively with the languages and literatures of the English, the Romance, and the Germanic peoples. Similarly, Physiology and Psychology form now the provinces of separate Boards; as do also Architecture and Fine Art. In addition, there are now in operation ten Boards not contemplated by the Commissioners—

[3] In both categories some members have seats on more than one Board.

Human Anatomy and Morphology, Veterinary Science, Sociology, Pharmacology, Statistics, Horticulture, Slavonic Studies, Comparative Philology, Military Studies, and one which has for its purview "the Principles, History, and Method of Science." This last-named, constituted four years ago, was with special and prolonged care designed to embrace not only the natural and mathematical sciences but also logic, ethics, history, pedagogy, economics, linguistics, archæology, scholarship, and medicine. The inclusion of so wide a field within the purview of one Board might at first seem to indicate a reaction against the spirit of specialisation; but the Senate were actuated by the recognition that the labourers in all fields of scientific enquiry are members one of another, and that a comprehensive consideration of the fundamental principles, the methods, and the progress of trained investigation is in itself a specialised industry, properly and profitably to be constituted a subject of separate study—the higher strategy in the campaign waged by the University against ignorance and narrowness of outlook.[4]

Maintenance of Standard.

It must not be supposed that this remarkable increase both in the number and still more in the *personnel* of the various bodies that constitute the framework of the reformed University implies any degradation of standard. On the contrary, the successive records of the Senate bear ample witness to the cautious elaboration of the machinery employed, whether imposed by the Commissioners or designed by themselves, and to the scrupulous care with which appointments and admissions are eventually made. And it is eminently satisfactory to learn that this jealousy for the honour of the organisation entrusted to its care has won the admiration of the various authorities, whether within the University or without, who have come under its operation. Admission to the status of a School is an honour which several governing bodies have been glad to achieve by providing the required additional outlay upon libraries and other equipment, and many a Teacher in Institutions throughout the metropolitan area has owed his increased salary or his restricted hours of work or his improved facilities for research to conditions imposed by the Senate upon his employers who had applied for his recognition.

The history of the Faculties during the period under review has not been in all respects what the Commissioners appear to have contemplated. As advisory bodies they have to a certain extent fallen between two stools. The Boards of Studies are more intensively expert in the details of curricula and the qualifications of Examiners, and the Councils are in a stronger position in matters that concern the more comprehensive co-ordination of studies. Moreover, the Councils must consult the Boards of Studies, but need not consult the Faculties unless they desire, though every Board must communicate to the Faculty or Faculties with which it is in relation the text of any report which it sends to either of the Councils. A further difficulty arises from the structure of the Faculties themselves. In the cases of Theology, Laws, Music, and Economics, the Faculty is hardly more (sometimes even less) than the corresponding Board of Studies without the external experts who sit upon the latter; in a modified degree this is true also of Engineering, where three Boards are concerned; on the other hand, in Arts, in Science, and especially in Medicine, the Faculty is far too large for the regular and convenient consideration of detailed business.[5] This disadvantage in the case of the three last-named bodies has led to the establishment of Faculty Boards, each consisting entirely or almost entirely of representatives appointed *ad hoc* by the associated Boards of Studies; these bodies are summoned as required, and are in some cases able to assist the higher authorities with correlative advice on the business of the Faculty itself, midway between the restricted sphere of the Boards of Studies and the more extensive purview of the Council. But there is a general feeling that these Faculty Boards are of the nature of a fifth wheel to the original coach, and that the urgent need—all legitimate interests being adequately safeguarded—is for the speeding up of the rate of advance rather than for any addition to an already inevitably cumbrous procedure. Thus the greatest influence regularly exercised by the Faculties themselves is in their capacity as electoral bodies. On their sixteen representatives on the Academic Council lies almost wholly the responsibility of digesting, correlating, and laying before the Senate all schemes, amendments, and developments affecting the Schools and Institutions, the Teachers (Appointed or Recognised), and the curricula, examinations, and degrees of Internal Students.

But the purview of the work of the University in this department has extended far beyond the immediate regulation of courses leading to graduation. Lack of space, however, precludes more than the barest mention of some of these newer features. To the Brown Animal Sanatory Institution, Goldsmiths' College, the Francis Galton Laboratory for National Eugenics, the Bartlett School of Architecture, and other foundations incidental reference has already been made; there is in each Faculty an elaborate system of Advanced Lectures delivered every year by some of the leading scholars and scientists of Europe and the United States; facilities for post-graduate study and research, and for the publication of their results and of students' theses, are constantly provided as far as possible; a series of carefully guarded Diplomas has been instituted in a variety of subjects—Anthropology, Geography, Journalism, Fine Art, Librarianship, Theology, Town Planning and Civic Architecture, Town Planning and Civic Engineering, Social Administration, and others; Libraries of all kinds, general and sectional, have been established and enlarged; and other illustrations, particulars of which may be found in the Annual Reports and other publications, show how fresh demands have ever met with fresh and fruitful response.[6]

Concentration of Preliminary Studies.

With all this record of achievement and advance there is one failure that calls for mention—or, if not failure in the strict sense, one instance in which the Senate have not been able to carry out in full a measure upon which the Commissioners laid special stress. In one of their Statutes they empowered the Senate, "with a view to greater efficiency and economy," to encourage among the Schools of the University the provision of common courses of instruction in suitable subjects, with consequent interchange of students; and added the direction:—"in particular the Senate shall use its best endeavours whenever practicable to secure such common courses of instruction for Internal Medical Students in the preliminary and intermediate portion of their studies under Appointed or Recognised Teachers at one or more centres." In an attached Report they pointed out how uneconomical was the system by which each medical school provided full instruction, not only in the strictly professional portions of the curriculum, but in Physics, Chemistry, Biology, Anatomy, and Physiology. The classes were small, the remuneration of the teachers inadequate, and the whole machinery an unnecessary burden upon the schools. The objections to concentration were frankly acknowledged—that it was essential that these subjects should be taught not as pure sciences

[4] Portions of this paragraph have been adapted to present conditions from the Report of the Principal Officer for the Year 1922–23.

[5] The membership of the several Faculties at the present time is as follows:—Theology, 20; Arts, 207; Laws, 20; Music, 17; Medicine, 405; Science, 242; Engineering, 60; Economics, 46. The Faculties of Arts, Medicine, and Science are concerned with the work of 21, 9, and 21 Boards of Studies respectively.

[6] It need hardly be added that many of these developments have been made possible only by the generosity of benefactors. I have not, either in this connection or elsewhere, been able to give any details of this most gratifying feature of the success that has followed the reconstitution of the University.

but with special reference to medical studies, and that great benefits resulted from continuous personal intercourse between teachers and students and the establishment of an *esprit de corps* from the beginning of the period of study. On the other hand were urged the disproportionate expensiveness of a system of small classes, each requiring elaborate equipment, the higher general standard of tuition that would accompany concentration, with eminent experts in charge of the several subjects, and the liberation in each school not only of space but also of human energy that could more profitably be devoted to clinical instruction. Weighing all the evidence before them, the Commissioners declared themselves in favour of concentration, but, failing to secure in this matter the support of the several medical schools, they were unable to frame Statutes to give compulsory effect to their views. Hence the Statute cited above is of a permissive and recommendatory character only; but the Report emphasises strongly the urgency of effecting such a concentration of teaching, and this not only in the specific "preliminary" and "intermediate" subjects indicated above, but also, should such an extension be found practicable, in Pathology, Pharmacology, and the various branches of Hygiene and Public Health.

As early as possible after they had got definitely to work, the Senate referred this portion of the Commissioners' Report to the Faculty of Medicine, who conducted an exhaustive enquiry into the whole question. After prolonged consideration of the views of three expert Committees, the Faculty declared their approval of the concentration of the preliminary and intermediate studies in two or more institutions; and on their advice the Senate prepared a detailed scheme for carrying it into effect, mainly by the erection, equipment, and endowment of an adequate and comprehensive Institute in the neighbourhood of the Central Office of the University. A large sum of money was collected for the purpose, and for a time the prospects of its realisation were most favourable. But as the details were further developed opposition arose among some of the Schools concerned, and eventually it was found that, owing to various apprehensions and difficulties of adjustment,[7] the scheme was no longer generally regarded as either desirable or practicable in the full sense of the Commissioners' Report. It had consequently to be abandoned, and the donations returned. This was a great disappointment to many who had believed, with the Commissioners, that the concentration they had recommended would have proved both efficient and economical. At a later stage it was adopted in a modified form by some of the Schools acting independently of the designed central control, and at the present time the students at Westminster, St. George's, Charing Cross, and King's College Hospitals are free to attend one of the University centres (University College and King's College) for instruction in their preliminary and intermediate work.[8]

But, if this particular application of the principle of common courses of instruction has for special reasons not been found practicable, analogous schemes have been, and continue to be, successfully adopted in other Faculties. As typical illustrations may be mentioned the concentration of Architecture, Dutch, and the Scandinavian Languages at University College, of Slavonic Studies at King's College, and of all Oriental Languages at the School of Oriental Studies; while Inter-collegiate Courses are conducted at various Schools in French, Italian, Geography, and other subjects, whereby the advantages anticipated by the Commissioners have to a considerable extent been secured.

External and Extension Work.

If in what I have written in these two articles I have confined myself almost entirely to the development of the Internal side of the University, it must not be supposed that I underrate either the importance or the progress of the other two main departments established on parallel lines by the Statutes of 1900. I have not attempted to sketch, even in outline, the history of the University at large during the past twenty-seven years. I have endeavoured rather to describe its fabric and machinery—to show what its constitution is, and how it has worked, both within the scope specifically appointed for it and by natural evolution beyond the immediate limitations of that scope. It was the new department—the Internal—that was then created, and that has since increased. The External side of the work of the University was in full and beneficent operation for half a century before the reconstitution of 1900, and—except for the establishment of the Boards of Studies—it has neither needed nor received any essential amendment since that date. As far as the readers of THE LANCET may be considered directly interested, it is sufficient to state that, *pari passu* with the Internal side (though with the necessary divergences), it has aimed at keeping abreast of the ever-increasing requirements of its province, whether by the adoption of Regulations dealing with fresh branches of specialised study, or by the periodical revision, at once cautious and sympathetic, of the list of Institutions (not only within these islands but throughout the Empire) from which, with the approval of the Privy Council, Certificates may be received, whether of courses attended or of appointments held, in connection with the several degrees in Medicine and Surgery. Its most notable development of recent years, that by which External Students are on request advised by experts with regard to their private work, to local facilities for education, and especially to means of relating their way of life to University studies, appeals from the nature of the case hardly at all to those seeking degrees in Medicine, however successful it has been in respect of other avenues to graduation.

For the same reason, and to a greater extent, the activities of the Extension Board do not fall within my present purpose. It has stood outside the elaborate machinery devised by the Statutes of 1900 for the regulation and co-ordination of the Internal and External Departments, and has thus been able with greater freedom to follow the lines of advance from time to time open before it. It has maintained with marked success the administration of University Extension work in London and the suburbs, having upon its Panel close upon seventy names, besides Supplementary Lecturers, and providing at about ninety centres continuous courses of lectures on History, Literature, the Fine Arts, Philosophy, and the various branches of Natural, Economic, Political, and Sociological Science. It is also concerned with the supply of Tutorial Classes for Working People throughout the metropolis; and has further within its province a carefully graded system of inspection and examination of secondary schools, the organisation of annual Summer Courses for Foreigners, and the award of a number of Diplomas and Certificates in subjects so diverse as Religious Knowledge, Psychological Medicine, Nursing, and Dramatic Art.

It is not, therefore, through negligence, but by the nature of my present limitations, that I have not dealt in full with these two departments, or at all with various other features of the work carried on by the Senate. My aim has been, not to dilate upon the character of the services which the University has rendered to the nation since its reconstruction, but to indicate under what system and by what agencies—with special reference to medical study—those services have been brought into operation.

[7] Among many other authorities, Lord Lister proclaimed himself as definitely hostile to the proposal.

[8] Mention may be made in this place—though there is no historical or organic connection between the two schemes—of the Physiological Laboratory which was established in the University Central Office in 1902 through the enterprise and devotion of a number of teachers of that subject. This was concerned, not with the instruction of undergraduates, but with the provision of advanced lectures and the prosecution of research; and had to be closed down in 1920 in consequence of the inability of the University to supply any longer the required accommodation by reason of the continuous increase of its own administrative staff. In this case also a large proportion of the donations had to be returned to those whose generosity had originally provided the equipment.

THE WORLD POPULATION CONFERENCE AT GENEVA.

AUGUST 31ST–SEPT. 3RD, 1927.

(FROM A SPECIAL CORRESPONDENT.)

THAT changes in the quality and quantity of the populations inhabiting the different countries of the earth have a fundamental bearing upon the future of the human race is obvious. Yet consideration of these changes has so far played but little part in those adjustments of international relations by which, in the last nine years, it has been sought to prevent wars. Hence the conference upon world population which sat in Geneva from August 31st to Sept. 3rd, attended by some 150 delegates from over 30 countries, has especial interest as being the first of its kind that has taken place.

In his opening address on Wednesday, August 31st, Sir BERNARD MALET, the chairman of the conference, made it clear that the objects of the conference were strictly impartial and scientific, and that propaganda was to be rigorously excluded from the debates. This statement of aim required emphasis, because it has been felt in some quarters that the promoters and most of the chief speakers of the conference were advocates of birth control, and that behind a façade of simulated scientific disinterestedness they had concealed the real motive of the conference—namely, birth control propaganda. The subject of birth control was therefore not discussed at the conference. So elaborately, in fact, was it avoided that certain aspects of the population question which, for the economist, possess scientific interest and which are rich in consequences for the racial future of mankind, were not touched upon.

The conference proper opened with a paper by Prof. RAYMOND PEARL upon the

Biology of Population Growth.

The substance of his argument was that the increase of the fruit fly, *Drosophila melanogaster*, and of yeast cells, grown under experimental conditions in bottles and test-tubes, could be graphically represented by a curve called, by its original discoverer, Verhulst, the "logistic curve." The multiplication of a wide variety of organisms, including human beings, was held by Prof. Pearl to conform to this curve.

But his exposition of the logistic curve was not devoid of ambiguity. Population growth is affected by three "primary variables"—natality, mortality, and migration. Upon these primary variables, however, there act "various secondary environmental factors," such as "food-supply, the economic situation, and social forces of various sorts." Now it is of the essence of Prof. Pearl's teaching that the influence of these secondary factors in modifying population growth is small. The chief difficulties of this argument can be conveyed by the following extract from Prof. Pearl's paper: It is not unreasonable to compare populations of fruit flies and human beings, because "populations, of whatever organisms, are, in their very nature, aggregate wholes, and behave in growth and other ways as such. The elements of their behaviour arising out of this condition of aggregate wholeness are just as true in populations composed of individuals of one species as in those composed of individuals of another. Perhaps the most impressive thing which has come out of the statistical study of human population growth is the evidence that the steady onward march of this growth is *not sensibly influenced by the host of economic and social events which are supposed of logical necessity, to affect it.*" (Italics mine.)

Two questions are raised by this quotation. In the first place, what, for human beings, is an "aggregate whole of population"? There is really no analogue, unless possibly that of a community living on a desert island cut off from the outside world, to be found among human beings for Prof. Pearl's bottled flies. What is the criterion of the "aggregate whole" of human population—the family, the tribe, the race, or humanity at large? Are the delimitations of the "whole" racial, cultural, economic or geographical in nature, or all simultaneously? Could, for instance, the British Isles, depending for its existence on its trade, be regarded as an aggregate whole in any sense comparable to the bottled colony of drosophila? The term "aggregate whole" clearly requires, but as clearly was not given, definition.

In the second place, what is meant by the statement that the growth of a population is not influenced by social and economic events? The industrial revolution was such an event. So was the agricultural development of the New World.

The trebling of the population of the British Isles in the last century is clearly attributable to these events. What, then, is meant by the statement that "secondary environmental factors," such as food-supply, have an influence which is "not sensible" upon population growth?

It was not surprising to find that Prof. Pearl's paper met with considerable criticism. This criticism for the first time reflected those differences in national attitude which were further manifested at every phase of the conference.

By American speakers, with their national leaning towards statistical and graphic formulations, the paper was hailed as a fundamental contribution which placed the problem of population growth upon a basis of scientific and mathematical fact. By speakers belonging to other nationalities, many of whom mollified their remarks by prefatory expressions of cordial personal esteem for Prof. Pearl, his paper was regarded, in its bearings upon human population, as a pseudo-scientific irrelevancy. The multiplication of flies in bottles, it was argued, protected from enemies and fed upon a controlled quantity of synthetic pabulum, had little bearing on the multiplication of human beings, or even of animals in a state of nature. It is probable that much of the criticism arose from misunderstanding, since Prof. Pearl was careful, in one part of his paper, to disclaim any desire to apply to human beings conclusions reached from observations on fruit flies. But in another passage he seemed to claim that his conclusions were applicable to human beings.

The next paper was read by Dr. H. P. FAIRCHILD, professor of sociology at New York University, upon the subject of

Optimum Populations.

His conception of the optimum population of a given country was that of a product of four factors, of which three are variable and one is fixed. "Land," used in the most comprehensive sense, is the factor which is fixed. Population, the state of the arts, and the standard of living are the factors which are variable. These terms were clearly defined by Prof. Fairchild whose thesis was that the criterion of the "optimum" of population should reside, not in the mere achievement of large numbers in relation to the available land and resources, but in a high standard of living, most helpfully considered in terms of family units. It is clear that the conception of an optimum population is fundamental to any effort to secure the fullest expression of social harmony and happiness within any community. Prof. Fairchild's paper served a valuable purpose in defining and sharpening this somewhat vague conception. His general thesis that the optimum should be conceived in cultural rather than in numerical terms, passed unchallenged.

Food and Population.

A paper on this subject was read by Dr. E. M. EAST, professor at Harvard University.

His argument was as follows: As far as can be foreseen at present, there exist on the earth some 13,000 million acres of tillable soil, capable of supporting, at the rate of 2½ acres per individual,

some 5000 million people. At the current rate of increase, this figure will be reached in about 100 years. At the present moment there exist in Europe some 80 to 85 million people who have to be fed with imported food. At present the only countries which make the exportation of food their primary business are Canada, the Argentine, and Australia. These countries are doubling their populations in 25 to 30 years, and are rapidly becoming self-supporting in the matter of manufactured goods in the meanwhile. Hence we are within measurable distance of a time when the present food-exporting countries will, after feeding their enormously augmented populations, have little food to export to the Old World and to Japan.

Hence it behoves these countries to become more self-supporting, either by increasing their food-production, or by limiting their numbers. Prof. East's conclusions were vigorously attacked by speakers from European countries, who seemed to treat him as if he were advocating American non-coöperation with Europe rather than prophesying from more or less incontrovertible data. The most ferocious onslaught came from Dr. Jean Bourdon, of the Sorbonne.

On the morning of Sept. 1st a paper was read by Prof. CARR-SAUNDERS, of Liverpool University, upon

Differential Fertility.

By this term is meant the varying rates of contribution to the adult ranks of the next generation made by different groups of the population. It was shown by this paper that in England those classes whose occupation is intellectual rather than manual, and those classes whose intelligence is shown by intelligence tests to be relatively superior, contribute less to the next generation than do the labouring classes and those classes whose intelligence, measured by intelligence tests, is seen to be of a relatively low order. Further, it was shown that this discrepancy in the contributions made by the different classes is increasing with the lapse of time.

Prof. Carr-Saunders was followed by Prof. LUCIEN MARCH, of Paris, Prof. GROTJAHN, of Berlin, and Prof. METHORST, of The Hague. These speakers described changes in their respective countries comparable to those that had occurred in England.

In a paper read on the afternoon of Sept. 1st, entitled Fertility and Sterility in Relation to Population, Dr. F. A. E. CREW, of Edinburgh, described the various factors which, affecting fecundity, fertilisation, pregnancy, and parturition, determine the reproduction rate of a given generation. The paper was of a non-controversial nature.

Other Papers.

Other papers were read by Mr. ALBERT THOMAS, who spoke in French, on International Migration and its Control, and by Mr. E. J. LIDBETTER, on Heredity, Disease, and Pauperism. These last contributions were in certain respects the most important of the conference. The painstaking investigations of the last speaker have led him to the conclusion that persons of low-grade stock conform in their marriages to the principle of "assortative mating." "The evidence," said Mr. Lidbetter, "suggests that defectives and low-grade types are closely intermingled and overlap, but that they preserve their general characteristics from generation to generation and *probably do not often, by intermarriage, initiate good stocks or derive strength from that source.* (Italics mine.) A few thousand family stocks probably provide the great burden of inherent defectiveness which the community has to bear." The fertility-rate of these types is high and Mr. Lidbetter says of them: "We may be assured that the rate of reproduction of these groups much exceeds that of any other section of the community." Further, they have not responded to that general rise in culture which has taken place in the last 100 years. During this period their "family conditions do not appear to have greatly altered, except that as their numbers have increased, they have not enjoyed that improvement in the standard of living which has been common, and the measure and intensity of their dependence upon the public has increased." This last observation has an important bearing upon the contention that these types are best helped by improving their environment.

Conclusions.

On the morning of Saturday, Sept. 3rd, it was resolved to form an international committee for the study of population problems.

It is difficult to sum up the achievements of the conference or even to draw attention to any conclusions upon which unanimity was reached. Certain delegates, especially those coming from Catholic countries, spoke as if they believed that the problems of population should be left to take care of themselves. Those who, for religious or other reasons, would let population problems take their natural course, usually give scientific expression to their beliefs by postulating "biological laws" through the operation of which nations wax and wane, the wealthier and more intellectual classes die out, and by which the other anomalies of differential fertility are to be explained. In face of such "laws" it is clearly useless, presumptuous even, for man to attempt to direct his biological destiny. Hence those who believe that "laws" govern population growth are usually opposed to eugenic ideals of racial improvement, and to the ideal of realising an "optimum" of population by any process of restriction or selection. This attitude was well represented at the conference by Prof. Corrado Gini, of the University of Rome. By speakers, on the other hand, from Anglo-Saxon countries and from Germany, it was generally believed that with the progress of knowledge and the enlightenment of public opinion it would be possible for man largely to regulate his biological future. To those who believe that, if civilisation is to be saved from disaster, "natural" selection must be replaced by "rational" selection, the ideal naturally commends itself that each country should strive to achieve a quantitative optimum—conceived along the lines indicated by Prof. Fairchild—with qualitatively optimal people. This last can only be realised by eugenic endeavour. It was interesting to English listeners, and doubtless agreeable to French listeners, to hear Prof. Grotjahn, of Berlin, state that the population of Germany is now approximately stationary, and outline for his country a detailed scheme of positive eugenics, concluding with the remark: "Then we should bring to an end the stupid fertility in those strata which have least means, room, or time for the upbringing of their offspring."

And it was noteworthy that the only suggestion that international pressure might eventually be brought to bear on a country to compel it to keep its population within limits compatible with the security of its neighbours, came from a Frenchman. In the words of Mr. Albert Thomas: "International rules concerning naturalisation and assimilation accepted by common consent, might, failing a policy of compulsory birth control, form a protection against excessive growth of certain sections of the world population where such growth may represent a danger to neighbouring communities."

PAPWORTH VILLAGE SETTLEMENT.—Dr. P. C. Varrier-Jones, medical director, in his report for 1926, stated that there were 127 children in the colony at the end of the year, of whom 81 were between the ages of 12 and 3. "After 11 years' experience," he writes, "no child (and some have now come of age) has, while a member of our community, contracted tuberculosis of the lungs, glands, bones, or joints, or indeed in any known clinical form. We have had no single case of tuberculous meningitis. Those who have left the settlement and seek education or employment elsewhere are all free from the disease." Dr. Varrier-Jones claims that this system has cut the vicious circle of infection, rendering the family not only free from infection but highly resistant to the disease.

SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

Insurance not Charity.

IT is interesting to see that at the recent meeting of the Scottish Association of Insurance Committees the President should have found it necessary to say that, after 15 years of administration, perhaps the most evil of all the forms of opposition to national health insurance is that which may be frankly described as snobbery. Some young people, he said, would have nothing to do with the Act because they looked upon its benefits as a kind of charity or pauper relief.

The claim made in the early days for contributory insurance was that it was essentially different from "rates," and that the recipients of benefits valued them more because they had paid for them. This was even regarded as the groundwork of a better system of "moral responsibility," and was supposed to evade the social degradation which came from providing health organisation and service out of the rates. This delusion has gone by the board, and now even benefit under unemployment insurance is nicknamed—quite wrongly—"the dole," while all forms of benefit under this, or under the national health insurance, are regarded in the same impersonal way as the services of gas, water, electricity, and the public health service generally. Insured persons, notwithstanding the moral difference supposed to be generated by the contributory system, go indifferently to child welfare centres, out-patient departments, general hospitals, and maternity homes and hospitals. The result to the individual is much the same whether the tax be an ad hoc tax paid in a special way as contributions, or a local rate paid on the rental, or a tax paid on tobacco or on income. In the end he acts on the idea that he is getting something for nothing whenever he does not (as it were) pay coin over the counter for his requirements.

Reorganisation of the Board of Health.

One of the motions brought before the Association's annual meeting was :—

"That the Conference view with disquietude the proposals made by the Government in the reorganisation of Offices (Scotland) Bill, to the effect that the Scottish Board of Health should be abolished, and the work inter alia of national health insurance in Scotland conducted by a department under a secretary responsible to the Secretary of State for Scotland, and regard as necessary for the proper conduct of the Local Government in Scotland that the duties of supervision should be undertaken by a responsible Board situated in Scotland."

This motion seems to be founded on some misunderstanding. The existing Board is subject in everything to the President, who is the Secretary of State for Scotland, and the new organisation, whatever form it takes, will be in the same position. But the above motion was supplemented in a way that materially altered the effect of it. A motion was moved :

"That, in the event of the Government pressing for the abolition of the Scottish Board of Health, the conference instructs the executive to take such steps as are necessary to secure by amendment of the Bill, or otherwise, that the Department of Health, which will take the place of the Board, shall be established on the lines of the Scottish Education Department, so that the existing relationship between the Scottish Board of Health and the Secretary of State for Scotland can be maintained by the Secretary of State, as Minister, being the responsible head of the Department."

Sir Henry Keith, whose unrivalled experience in Scottish local government gives weight to his view, said there was no intention, so far as he understood the Bill, that the seat of office, so far as Scottish administration was concerned, should be removed from Edinburgh. If there were any such intention it would be strenuously opposed by all representative associations in Scotland.

In effect, the addendum and the motion together support the Government's proposals. The second reading of the Bill will be completed, it is understood, in the autumn session, and the Bill will be passed.

Sir John Lindsay.

By the death of Sir John Lindsay, late town clerk of Glasgow, Scotland has lost a man of great intellectual acquisitions and force of character. It is more than 30 years since I first met him at meetings of the Sanitary Association. He was heart and soul in favour of the modern public health movement, and when he ultimately became town clerk everybody realised his strength as a municipal administrator and reformer. He was an untiring slave in the service of the corporation and the nation, and his evidence before the Housing Commission was masterly. History, as yet, is not in the habit of recording what the commonwealth owes to men of this kind.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

The Tuberculosis Medical Officers' Association.

THE annual meeting of the Tuberculosis Medical Officers' Association was held in Dublin last week, and the Association added to its usual programme the holding of a scientific meeting to which members of the profession were invited. Dr. McMahon, of New York, showed an interesting series of X ray slides illustrative of the changes that take place in the lungs in the healing of pulmonary tuberculosis. Dr. Boyd Barrett, one of the medical inspectors of the Department of Local Government and Public Health, followed with a paper on the Control of Bovine Tuberculous Infection. He quoted investigations proving that bovine infection is the cause not only of human disease but of death. He said that it was necessary that facilities for the bacteriological examination of milk should be provided, and suggested the application of the Swedish law, which made it imperative that persons working in dairies or concerned with the sale of milk should be in possession of a medical certificate, delivered less than a year before the time of their engagement, stating that they were not suffering from contagious tuberculosis, with severe penalties and stoppage of sale of milk for non-compliance. Every dairy farm and dairy should be registered, and registration should be followed by inspection by a veterinary surgeon, so that all diseased animals might be discovered. In this way the elimination of advanced cases of tuberculosis could be commenced, leading subsequently to the separation of healthy from tuberculin-reacting cows. Thus, also, the basis would be laid for the ultimate objective of the rearing of tuberculosis-free herds. The next step would be the testing by tuberculin of the remainder of the herd, and next the milk of cows giving the reaction to tuberculosis should be tested for the presence of tubercle bacilli.

Dr. P. J. Burke, tuberculosis medical officer of County Sligo, read a short paper on the Costs of Tuberculosis. He quoted estimates to show that the average life lost to the nation by tuberculosis had been valued at from £500 to £1500 by different authorities. Taking £300 as a minimum figure, the cost of each illness terminating in death might be counted as £360. Each life lost, therefore, deprived the country of the value of at least £660. The reduction of tuberculous mortality in the year 1925 as compared with 1915 meant a saving for the nation worth £1,354,320. The cost to the nation for the year 1927 he estimated at £4,347,272, while the money at present spent on county tuberculosis schemes was about £75,000.

Public Health Services.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

THE following are some 1926 statistics of six counties :—

Name of district and estimated mid-year population.	Birth-rate.	Death-rates per 1000 of the population.					Death-rates per 1000 births.		
		All causes.	Tuberculosis.	Cancer.	Respiratory diseases with influenza.	Heart disease.	Diarrhœa under 2 years.	Infant mortality.	Maternal mortality from childbirth.
Essex .. .. .. (991,700)	16·8	9·9	0·76	1·37	1·4	1·5	8·2	52	3·0
Surrey .. .. .. (773,900)	14·7	10·0	0·66	1·44	1·5	1·4	3·4	50	3·0
Warwickshire .. (370,600)	17·5	10·5	0·82	1·38	1·4	1·5	3·7	55	3·3
Leicestershire .. (279,700)	17·4	10·5	0·88	1·23	1·3	1·5	4·5	58	3·5
Cumberland .. (217,400)	19·9	12·6	0·76	1·42	1·9	1·8	9·7	72	6·2
Northamptonshire (214,200)	15·8	11·4	0·76	1·60	1·6	1·8	2·6	52	4·7

Essex.

Dr. W. A. Bullough states that the tuberculosis staff has been strengthened during 1926 by the appointment of Dr. W. Burton Wood as consulting officer (part-time) for pulmonary tuberculosis. Dr. Wood has visited all the dispensaries and sanatoriums in the county, and also the sanatoriums outside the county which receive Essex patients. The report contains a contribution from Dr. Wood on "tuberculous infection in early life," which concludes with the suggestion that special cards should be issued in order to facilitate the following up of children threatened with tuberculosis. He would use these cards for four classes of children : (1) those who had been contacts of cases of open tuberculosis ; (2) those who had suffered from any tuberculous disease ; (3) the so-called pre-tuberculous children ; and (4) those whose appearance suggested the type of constitution usually associated with a low resistance to tuberculous infection.

When these children left school the special card would be sent to the tuberculosis department at Chelmsford for future reference. The report also contains extracts from the report of Dr. J. Pearse, of the Ministry of Health, on the Essex combined medical service resulting from an inquiry made early in 1926. This scheme is an attempt to provide a unified public health service by appointing the local medical officer of health assistant to the county medical officer of health for the public health services performed by the county. Dr. Pearse's report is generally favourable as regards the availability of a specially trained officer, coördination, and the avoidance of overlapping. One officer residing in the district responsible for all public duties has the opportunity of wider influence. Dr. Pearse deals with some of the objections which might be met in various ways. Dual control has caused no special difficulty, though there is a feeling that the county council duties receive first consideration. Some of the districts are too big and others are too small. The salary of £700, even if it rises to £800, is not attractive as a permanency, and the question arises whether the future prospects of these officers are helped by the title of *assistant* county medical officer. The responsibility and salary do not perhaps compare favourably with those usual in the case of the medical officer of health of a combined district. The scheme now includes 12 areas and a population of about 448,000. In view of the new regulations for dealing with puerperal pyrexia, the county council have agreed to the appointment of an obstetric specialist to attend a limited number of cases, the total fees not to exceed £105 plus travelling expenses, for an experimental period of 12 months ; and have authorised the county medical officer to arrange for the admission to hospital of a limited number of patients at a cost not to exceed £3 3*s.* per week. The arrangements for home nursing, when required, are to be made with the Essex County Nursing Association.

Of 1356 samples of milk, 87 were unsatisfactory ; 28 contained added water, varying from 4 per cent. up to 44 per cent. ; 57 were deficient in fat, the deficiency varying from 5 per cent. to 43 per cent. ; and two samples were unusual in being dyed with annatto. The licences issued by the county council for Grade A milk show an increase year by year. During 1923 eight were issued, during 1924 11, during 1925 27, and during 1926 35. During the year "98 samples were submitted to microscopical examination, when four were found to contain bacilli indistinguishable microscopically from the tubercle bacilli." No further action is mentioned, so presumably the biological test was not carried out. Under the Tuberculosis Order 676 animals were slaughtered. Of these 318 had tuberculosis which was not "advanced" ; 356 had advanced tuberculosis ; and two were found to be not tuberculous. The total compensation paid was £4017 6*s.* 6*d.*, and the receipts from the sale of carcasses were £701 5*s.* 6*d.*

The county council is endeavouring to see that the water-supplies of the county are distributed equitably among the various districts. The rivers are to be gauged, beginning with the Stour, which appears to be the chief practical source of future supplies for the county.

Surrey.

Dr. Joseph Cates records two memorable happenings during 1926. The county sanatorium at Milford was begun, and a scheme to provide treatment for children under school age was approved. The sanatorium will accommodate 300 patients, and the contract price amounts to £166,270. Substantial progress was made by the end of 1926, despite the interruption caused by the general strike, and the building should be completed before September, 1928. In the scheme for the treatment of pre-school children a whole-time dentist is to be appointed and an additional health visitor to act as dental nurse. Arrangements will be made for the services of a part-time ophthalmic surgeon, and for children suffering from enlarged tonsils to be treated in hospital on the terms at present sanctioned by the Education Committee. To begin with, the larger and better equipped school clinics—such as those at Chertsey, Woking, Malden, and Surbiton—will be used for the scheme. Photographs of the Malden clinic are included in the report. The condition of the River Wandle has received considerable attention during the year. A detailed survey from Wandle Park, Croydon, to the London-road bridge at Wallington has been made. Pollution in this stretch is chiefly due to oil from the surface water system at Croydon. The removal of obstructions due to deposits and defective banks has diminished the danger of flooding. Two instances of chemical pollution, both originating in the Carshalton district, were dealt with.

Dr. Cates deals with the recognised relation of chicken-pox to herpes zoster, and suggests that, when it is found necessary to make chicken-pox notifiable, herpes zoster should be also notified. Owing to the apparently increased prevalence of acute poliomyelitis, the county council endeavoured to obtain particulars from the local sanitary authorities. Four of the latter refused to comply with the request, and the matter was referred to the Ministry for a decision. The county council is responsible for maternity and child welfare in a great part of the county, five municipal boroughs and some urban districts being excepted. The area included has a population of 450,670. The superintendent health visitor is

inspector of midwives, but the superintendent of the Surrey Nursing Association inspects the midwives in the employ of her association. The county council provides hospital treatment for children with ophthalmia neonatorum in preference to domiciliary nursing, but little use is made of this arrangement, the cases admitted to hospital during the last four years being 1, 1, 2, and 1 respectively. No cases of impaired vision were reported in 1926, and one in each of the two previous years, the notifications in each of these three years being about 50. For dealing with cases of puerperal pyrexia the county is divided into three areas. Each area has its gynæcologist and available hospital. During the first quarter of the year, under the new scheme, there were two applications from medical practitioners for a second opinion, and five cases were admitted to hospital. More requests for these facilities are expected when the scheme becomes more widely known. The council has no maternity homes of its own, but makes arrangements for the admission of patients to suitable homes, chiefly at Woking, Redhill, Guildford, and Bagshot. These homes are being used more every year, and the accommodation is now hardly sufficient to meet the needs of the county. The council have endeavoured to arrange for a "refresher" course for midwives lasting for a fortnight, but, as no institution in London was prepared to meet this need, an effort is now being made to arrange for such a course at the County Hospital, Guildford. Answers to a questionaire on the subject of overcrowding, addressed to the local authorities in the county, showed that in rather more than one-third of the districts there was some evidence that overcrowding was diminishing.

Warwickshire.

Dr. A. Hamilton Wood points out that of the 356 deaths of infants 176, or 50 per cent., were due to congenital debility, malformation, or premature birth, and he looks forward to antenatal instruction in the future through the obstetrician and the midwife as the means of preventing many of these deaths. At the present time, however, the antenatal work is on a very small scale. There were 6493 births in the county during 1926. The two principal antenatal clinics at the county maternity homes at Warwick and Rugby were attended by 164 expectant mothers, and two small antenatal clinics at Coventry and Stratford-on-Avon were attended by 23 expectant mothers.

The Coventry and Warwickshire Hospital and the Warneford Hospital at Leamington have antenatal clinics for the admission of complicated cases to their maternity wards. It thus appears that up to now only about 200 expectant mothers in the county receive antenatal supervision through these clinics. There were 14 notifications of encephalitis lethargica in the urban districts and 19 in the rural, and 21 deaths were registered from this disease. The Upper Tame Basin Joint Committee have improved the quality of the river water before it reaches the county, but a great deal still remains to be done. The trade waste from paper mills is found to be difficult to deal with. On July 27th a complete survey was made of the Avon and its tributaries. The pollution of the river by Leamington was worse during the summer owing to the pumping being interfered with by the coal shortage. The capacity of the pumps is to be increased and filter beds, capable of dealing with the whole of the town's sewage, are to be laid down. Rugby sewage works are giving improved results. The improvement from the work done at Coventry is not as great as was expected when the works were extended some two years ago, and the area available for bacterial filtration will need to be increased.

The measures taken by the county council to comply with the new Milk Act are to investigate all cases of tuberculous milk reported by outside authorities and to take 50 bulk samples with a view to the detection of tubercle bacilli. Ten notifications of tubercle-infected milk were received from outside authorities, but as the result only three tuberculous cows were found and slaughtered under the Order. Seventy-five per cent. of the births were attended by midwives, who sent for medical help in 990 cases out of 4887. The provision made to comply with the new puerperal pyrexia regulations consists of the admission of cases to the larger hospitals of the county at a charge of £3 3*s.* per week, pathological examinations by the University of Birmingham, and the appointment of obstetric consultants, one at Birmingham and the other at Leamington. By the Housing Act of 1926 the county council is empowered to take steps for the improvement and renovation of labourers' houses, but the district councils may apply to the Ministry for permission to administer the Act. Most of the district councils have so applied, and for the present the county council will leave the administration of the Act to the urban and district councils.

Leicestershire.

Dr. J. A. Fairer reports that Dr. T. Robinson had to resign on Sept. 30th on account of ill-health, after 28 years' service, and that he has been appointed consulting medical officer. Dr. Fairer has to record a widespread outbreak of infantile paralysis during the autumn, which makes "a comprehensive scheme of orthopædic treatment a matter of extreme urgency." The cases numbered 72, 55 being in the rural districts and 17 in the urban. A feature of the distribution of the cases was the relative immunity of the coal-mining districts of the western part of the county. The county council provides 15 beds at a convalescent home at Woodhouse Eaves for county children, of whom 92 were admitted during the year with very satisfactory results. The enormous development of housing schemes has led to new difficulties in sewage disposal. Serious pollution of rivers and streams is unavoidable during this period of reconstruction, and the difficulties, says Dr. Fairer, will have to be faced with foresight and determination. Improvements are being effected in the hygienic conditions of the elementary schools, especially with regard to cloakroom accommodation and the arrangements for drying clothes in wet weather. Six dairy farms were visited owing to outside complaints of tuberculous milk. On four of the farms no animal giving tuberculous milk could be detected, and the unusual suggestion is put forward that producers sending milk by rail do not always have their own churns immediately returned to them, that these churns may be used in the interval by other milk producers, and that the real owner of the churn may be blamed for tuberculous milk which he did not produce.

Northamptonshire.

Dr. L. Meredith Davies took over the duties on April 1st from his predecessor, Dr. Charles E. Paget, the first medical officer of health for the county, whose term of office extended from 1897 to 1926. Dr. Paget's recent death was announced on p. 682 of the last issue of THE LANCET.

Good progress has been made in the coördination of the health services, which, however, will not be complete until all the branches are housed in one building. In the future a single medical officer will supervise the health of the children from prenatal days until they leave school, and a single officer will deal with each family, except for tuberculosis or eye defects. The time saved will enable the schools to be visited every 12 months instead of every 14, and the work should be more efficient. The amalgamation of office staffs is under consideration, and also a scheme by which the same nurse will carry out health visiting and school and tuberculosis work. The county council have installed two mercury-vapour lamps at the Wellingborough dispensary, in order to ensure the treatment of all known cases of lupus in the county. Dr. Davies says the results of light treatment in lupus have exceeded expectations and that improvement is more rapid in the ulcerative varieties. "Dramatic results" are obtained in the case of discharging sinuses in connexion with various tuberculous conditions. The pre-tuberculous group shows distinct

improvement in mental health and brightness, with definite gain of weight. Under the definition "pre-tuberculous" he includes children with a history of exceptional exposure to infection and those who either present stigmata of tubercle or are debilitated, anæmic, or marantic, or have failed to recover completely from measles, whooping-cough, &c. With regard to pulmonary cases, much longer experience will be necessary before expressing an opinion, but good results have been obtained in a few carefully chosen cases. Vitaglass has been substituted for ordinary window glass in the children's wards of the sanatorium. Dr. Davies discusses the relation of tuberculosis to the boot and shoe industry. About 20 per cent. of the occupied workers are engaged in this industry, and the number of new patients at the dispensary, the number of patients admitted to the sanatorium, and the number of deaths of adults from pulmonary tuberculosis in the same industry are all about 25 per cent. of the respective totals. The finishers and the clickers are the workers chiefly attacked by tubercle. In the clicking department the air is stagnant but free from dust. In the finishing department the air is hot from gas jets and generally very dusty. In each case the work is sedentary and light. Outside complaints of tuberculous milk led to veterinary inspections at four farms and the bacteriological examination of 29 samples of milk, but no cows with tuberculous udders were traced. Up to now the county council have made no arrangement for the veterinary inspection of the cattle in the county, but have contented themselves with appointing the existing joint committees for veterinary inspection, which only cover a portion of the county, their agents.

Cumberland.

Dr. F. H. Morison refers to the unenviable notoriety of his county for a high maternal death-rate from childbirth. For its reduction he looks to antenatal work. There is no mention, however, of any antenatal clinics conducted by the county council. The Housing (Rural Workers) Act, 1926, has been considered. Several district councils wished to work the Act. The county council, however, decided that central administration was essential to secure uniformity of practice throughout the county. They have therefore drawn up a scheme, which has been approved by the Ministry, showing the conditions under which financial assistance will be given to the owners of small properties to enable them to effect improvements and renovations. Dr. Morison reports three outbreaks of diphtheria in which immunisation was apparently effective. In the first at Hayton there were 13 cases with four deaths. This outbreak was associated with a carrier, and cases occurred intermittently from August, 1925, until July, 1926. Ultimately all the school staff and children (whose parents gave consent) were Schick-tested and immunised. No fresh cases occurred subsequent to the inoculations, in spite of the fact that the carrier was in attendance at the school. The second outbreak, at Hallbankgate, occurred suddenly in the autumn of 1926. There were 11 cases with three deaths; 140 children were immunised, and no subsequent fresh cases occurred. At Brampton there were 13 cases with one death. About 240 children were immunised, and in this case two of the inoculated children subsequently contracted diphtheria. One of these children had only had one inoculation, and the second three inoculations, a month previous to the attack of diphtheria.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED SEPT. 17TH, 1927.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 126 (last week 146); scarlet fever, 1675; diphtheria, 1022; enteric fever, 104; pneumonia, 454; puerperal fever, 40; puerperal pyrexia, 79; cerebro-spinal fever, 8; acute poliomyelitis, 46; acute polio-encephalitis, 4; encephalitis lethargica, 23; dysentery, 8; ophthalmia neonatorum, 111. No case of cholera, plague, or typhus was notified during the week.

While the cases of poliomyelitis and polio-encephalitis are scattered over 16 counties in England and Wales, there is a high incidence of the infection in the East Riding of Yorkshire, where the numbers reported for the last few weeks (looking backward) are 20, 25, 20, 13, 8. From Kingston-upon-Hull itself 14 cases were reported this week against 21 cases last week. It is stated that the mortality has not been heavy.

Deaths.—In the aggregate of great towns, including London, there was no death from small-pox, 5 (0) from enteric fever, 13 (2) from measles, 6 (0) from scarlet fever, 8 (4) from whooping-cough, 27 (6) from diphtheria, 75 (22) from diarrhœa and enteritis under two years, and 24 (2) from influenza. The figures in parentheses are those for London itself.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg.-Comdr. W. L. Hawkins is placed on the retd. list with the rank of Surg.-Capt.

Surg. Comdrs. C. A. G. Phipps and K. D. Bell to *President*, for Royal Victoria Yard, Deptford.

Surg. Lt.-Comdr. F. C. Hunot to be Surg.-Comdr.

The following appointments have been made by the Admiralty: Surg.-Lts. F. W. Gayford to *Foxglove*; T. S. Osborne to *Bruce*; H. J. Scott to *Cricket*; A. S. Burns to *Castor*; and T. F. Barlow to *Keppel*. Surg.-Lts. (D.) F. W. Watt to *Victory*, for R.M. Infirmary, Eastney; and D. L. Simpson to *Victory*, for R.N. Barracks, temp. supy.; and T. Hunt to *Ramillies*.

ROYAL NAVAL VOLUNTEER RESERVE.

Proby. Surg.-Lt. R. S. Allison to be Surg.-Lt.

ROYAL ARMY MEDICAL CORPS.

R. Reynolds to be Temp. Lt.

ARMY RESERVE OF OFFICERS.

Lt.-Col. F. Harvey, having attained the age limit of liability to recall, ceases to belong to the Res. of Off.

TERRITORIAL ARMY.

Capt. (Prov.) A. Badenoch is confirmed in his rank.
Lt. C. P. Oliver to be Capt.
Lt. D. R. Lewis resigns his commn.

TERRITORIAL ARMY RESERVE OF OFFICERS.

Capt. J. Lamberton from the Active List to be Capt.

ROYAL AIR FORCE.

The undermentioned are granted short service commissions in the rank of Flying Officer for three years on the Active List: G. T. O'Brien and P. O'Callaghan.

Flying Officer W. D. Guyler is promoted to the rank of Flight Lt. (Dental) on promotion to Capt. in the Army Dental Corps.

INDIAN MEDICAL SERVICE.

Capts. E. C. A. Smith, Kekhasru Sorabji Master, W. J. Webster, and S. R. Prall to be Majs.

Maj. G. Covell has been appointed Supernumerary Officer, Central Research Institute, Kasauli. Lt.-Col. D. H. Rai, professor, King Edward Medical College, has been appointed Civil Surg., Lahore, vice Lt.-Col. J. G. D. Swan. Sardar Sahib Dr. Amdik Singh has been appointed Officiating Civil Surg., Shahpur, vice Dr. Traynor. Maj. A. S. Fry to officiate as Officer Commanding Indian Military Hospital, Peshawar, vice Lt.-Col. G. C. L. Kerans, granted leave. Capt. L. G. Pearson to officiate as 2nd in Command, Indian Military Hospital, Peshawar, vice Maj. A. S. Fry, vacated. Capt. R. Sen to be 2nd in Command, Indian Military Hospital, Sialkot, vice Capt. D. P. Bhargava. Capt. D. Kelly to be in Command, Indian Military Hospital, Bakloh, vice Capt. R. A. Leembruggen, vacated. Maj. R. N. Khosla to be 2nd in Command, Indian Military Hospital, Lahore Cantonment, vice Maj. J. B. Hanafin, vacated. Col. W. D. A. Keys, Indian Military Hospital, Bangalore, to be Senior Brevet Colonel. Maj. J. Scott to be Brevet Lt.-Col. Lt.-Col. J. G. D. Swan, Civil Surg., Lahore, has been granted leave, and Maj. T. L. Bomford, Officiating Civil Surg., Burdwan.

Correspondence.

"Audi alteram partem."

THE BROAD ROAD OF HEALTH.

A REJOINDER.

To the Editor of THE LANCET.

SIR,—The MacAlister lecture, which I had the honour of delivering before the London Clinical Society in July last, has been the subject of a good deal of discussion, both in the correspondence columns of THE LANCET and elsewhere. In addition to the comments which have appeared in the medical and in the lay press, I have received a very large number of letters. The part of the lecture which has given rise to the greatest amount of discussion is that in which I said that the case for wholemeal bread had recently been overstated. I still maintain that this is so. In this letter I wish to draw attention to two considerations of a more general kind, arising out of the wholemeal bread propaganda in so far as medical men have taken part in it.

Before doing so, perhaps, it may not be out of place to refer to some of the criticisms which have been advanced against my view. I do not purpose a specific rejoinder. The full corroboration of my remarks in quick succession by several distinguished professors of physiology, by medical officers of health who had made a special study of the question, by the professor of agriculture at Cambridge University, and then by the chief medical officer of the Ministry of Health, renders this unnecessary. It also gives my contention that academic hall-mark which the President of the New Health Society, whilst generously granting me status in another direction, regretted that I lacked in this one. This overwhelming series of confirmations modified considerably the attitude of the Honorary Secretary of the Society, who, before they appeared, rebuked me severely for making statements so "unworthy" of myself, and afterwards suggested that, in view of the different medical opinions enunciated, the Medical Research Council should give the matter early attention. A most admirable adjustment and one which, were it maintained, would doubtless put the teaching of the Society above reproach.

Of my many other critics I need say little. Most of them have misread my main thesis, no doubt being influenced more by an unfortunate newspaper controversy and consequent detachment of some of my sentences from their context, than by reading the lecture itself. I can only explain the virulence of some of the letters I have received by supposing that I have unwittingly struck a blow at some vested interests. Two gentlemen called me a liar and one of them insistently invites me to debate this point on the platform. But a feeling of slight prejudice makes me doubt if such a discussion would serve any useful purpose. Certain firms have sent me boxes of elegantly packed biscuits and specimens of rather expensive bread, feeling sure (they say) that I did not know of the existence of these things or I should not have said what I did. I have been challenged to live by (white) bread alone, despite the plea that I entered for a mixed diet. The challenger offers to write my epitaph if I died, which I should deserve to do if I subscribed to his childish logic. And an appropriate epitaph would be: "I was well; I wanted to be better; here I lie." Mr. X. has told me how well his pigs thrive on wholemeal. Mr. Y. relates how his canaries wilt when fed on flour. I have not had time to remind the writers that a man is neither a pig nor a canary, so they are probably quite happy. And in any case my withers are unwrung, because Mme. Z., "dancer of originality," cheers me by the news that, though her age was 42 last May, she can perform the usual "lifts and swings," and follow her profession of "exhibition and semi-acrobatic dancer, without the slightest fatigue or distress," much better on white bread than she can on brown . . . .

Had the advocacy of wholemeal bread been confined to a statement of its virtues for particular individuals, or even to a recommendation of its use as an occasional alternative to white bread by those who are able to disregard the economic side of the question, I should never have said what I did. For I readily endorse both of these aspects of the matter. But to state that the substitution of wholemeal for white bread by the whole nation would result in such hygienic benefits as would amply compensate for the extra cost to the worker; to go further and promise that such substitution offered immunity from cancer and other diseases: these were claims which I decided, not without consideration, to challenge. I did so because I knew that both of these claims lack the support of science, whether our knowledge be derived from experiment or from experience.

But significant though this ill-informed effort to establish the claims of a particular bread is, the campaign of which it is a part is more significant still, and more serious in its consequences. Nominally undertaken in the interest of personal hygiene, it is actually inimical to this. Although not the motive of those medical men who support the campaign, a disastrous result of the latter is the creation in the public mind of the idea that health is an extremely difficult thing to secure. The citizen is led to believe, and to fear, that only by a series of close observances, and equally close restrictions, can he hope for physical salvation. So much so that many are saying: "It is high, I cannot attain unto it." The way of health is conceived of as a tightrope, along which we make a slow and trepidating progress. The least bias to this or to that side, not immediately corrected, or corrected too slowly or inaccurately, and we plunge headlong into the abyss. Here await us inflammations and ulcerations and cancer—especially cancer.

This is not my conception of the way of health, nor is it the experience of the ordinary healthy human being. Health is a broad and well-paved road; nature is both an excellent road-maker and an excellent road-mender. Not only does it require very little skill, and but a modicum of good fortune, to keep to it, the wayfaring man must be a fool indeed if he errs therein. Now and again there are bends which call for some care; there are cross roads; there is a goodly sprinkling of fools travelling; and pace carries risks of a special kind. But apart from these things the amount of negotiation needed is very little provided we keep control of the car.

Another idea has been promulgated of late, the idea which is embodied in the phrase "The Secrets of Good Health." This second conception is on all fours with the first and is equally regrettable. "Secrets," forsooth! As though good health were something masonic! Regard the carter driving his team, the sailor hauling on his rope, the smith working at his anvil; his physical fitness, far from being a mode of difficult and unnatural progression, or the result of initiation into a ritual, is the most spontaneous of all acquirements. There is here no "struggling, task'd morality," no "strife divine"; there is "no effort on his brow," he "does not strive," he "does not weep." Yet no health society inquires what bread he eats, if he gets sufficient vitamins, or how frequently waste products leave his body. Why should it? Such curiosity could no more discover the "secret" of health than could the question: "What porridge had John Keats?" lay bare the mystery of a poet's soul.

More than one critic has dubbed me the Mark Tapley of medicine. I prefer the rôle of Mark Tapley to that of Mrs. Gummidge. For I hold that in medicine society has a greater enemy than the man who kills joy, and that is the man who kills confidence.

There is yet another unfortunate aspect of this particular campaign. All pseudo-science is obstructive

to the progress of true science. The spread of irresponsible statements about the causes of cancer, such as the fiction that this disease is due to the eating of some special article of diet, tends to distract the public mind from the only way by which this great problem can ever be solved—namely, by painstaking and concentrated research. H. G. Wells, who has done more for the progress of scientific methods than any other man in his generation, puts this fact more eloquently than I can possibly do. "The disease of cancer," says Sempack in "Meanwhile," "will be banished from life by calm, unhurrying, persistent men and women, working, with every shiver of feeling controlled and suppressed, in hospitals and laboratories." Again, lamenting the paucity of workers in this field, he asks, "Where are the mighty armies of investigators? Nothing as yet but guerrilla bands that wander in the wilderness and happen upon this or that." No greater deterrent to an adequate appreciation of our present ignorance of the causes of cancer could possibly exist than the serving up to the public of private notions under the guise of established facts. And that certain medical men, who have in other fields earned a prestige which enables them to speak with authority, should endorse the fantastic vapourings of untrained laymen, is both pathetic and unfortunate.—I am, Sir, yours faithfully,

Harley-street, W., Sept. 28th, 1927. THOMAS HORDER.

LUMINAL IN EPILEPSY.

To the Editor of THE LANCET.

SIR,—I was much interested in the article by Dr. J. Tylor Fox in your issue of Sept. 17th. In a short paper which I published in your columns on August 5th, 1922 (p. 275), I reported my experience in the days of the early use of this drug. During the past five years I have continued the treatment of epilepsy with this drug in both hospital and private cases, and my experiences had led me to form similar views to those expressed by Dr. Fox.

In the majority of cases improvement has occurred in the first few months of treatment, but, unfortunately, observation of its use over a more prolonged period has not confirmed one's original opinion of its value. In many cases, after a period varying from 6 to 12 months, the frequency of the attacks tend to increase sometimes in an alarming manner, and this is often accompanied by a mental condition which can best be described as "mental cloudiness." When, for such reasons, the decision has been reached that the drug must be withdrawn, a difficult period is encountered, lasting from four to six weeks, even if the drug is withdrawn gradually. The patient is liable to develop a series of attacks which can almost be described as fulminating in character. This state has been more likely to occur in the case of children than in adults.

Accordingly, I have been gradually led to confine the use of luminal in epilepsy to certain selected cases, and to discontinue its use in the greater proportion of patients. The older drugs still remain the best agent in the treatment of epileptic seizures. I should mention that the drug I have used is luminal in suspension, in a bromide mixture, and not luminal-sodium. I am, Sir, yours faithfully,

Liverpool, Sept. 24th, 1927. W. JOHNSON.

"THE THOMAS SPLINT."

To the Editor of THE LANCET.

SIR,—I beg to thank you for the appreciative critique of my book on the "Thomas Splint" which appeared in your issue of August 13th (p. 337), and I shall be grateful if you will allow me a little space to reply to one or two points on which your reviewer and I do not seem to be in agreement. Your reviewer says:—

> In the description of the Thomas splint for the leg the lowest level of the ring is stated to be at the junction of the ring and inner upright. Surely the lowest point of the ring should be at the point where the tuber ischii comes in contact with the ring, so that naturally, with any displacement, this bony point of counter-extension will always tend to slip back and remain in contact with it."

I beg to assert that my statement is correct. In a properly made Thomas the lowest point of the ring is the point where it joins the internal bar, the word "lowest" being used to mean most inferior when the body is in the anatomical position or more simply nearest the foot and farthest from the head. If the point where the ring joins the internal bar be at a higher level than the point where the ring comes in contact with the tuber ischii the ring will press on the side of the perineum and adductor origins on the rami of pubis and ischium. These parts are not suitable for taking counter extension from. I do not use the splint in the Thomas manner in the initial treatment of fracture of the femur because I find the pull required to restore the limb to and retain it at its proper length causes at least some pain and discomfort to the patient from pressure on the tuber ischii, and these disadvantages do not occur when the splint is used in the Hodgen way.

Your reviewer is incorrect when he states that my method is no better than simple extension in a trough, because the essence of my method is not only to extend the leg to the same length as its fellow, but also to restore and maintain the arch of the femur, which is easily done by the pressure from below of the series of flannel bands passing between the side bars and secured by clips, and with the "key bandage" acting as the key stone does in a stone arch. The restoration of the arch of the femur is impossible or very difficult to achieve in any form of trough splint. Further, my 4-in. flannel bands and 4-in. sectional dressings allow free access to wounds, section by section, so that the restored arch is never lost. This is impossible to do in a trough splint. My method is unsuitable in the old and infirm because of the risk of congestion of the lungs from inclining the body so as to use its weight for the extending force. In these cases the probability of having to prop up the patient must be considered, and, therefore, the Thomas splint must be applied strictly in the Thomas manner, and if the patient be unable to stand sufficient pressure on the tuber ischii, it is better for him to put up with a little shortening rather than to lose his life from pulmonary complications.

I am, Sir, yours faithfully,

MEURICE SINCLAIR.

Harley-street, W., Sept. 24th, 1927.

CANCER AND ADRENALIN.

To the Editor of THE LANCET.

SIR,—On my return from abroad Dr. Cramer's letter in your issue on Sept. 3rd was brought to my notice. Dr. Stephens and I used adrenalin for the well-recognised purpose of localising another reagent. It was only incidentally that we noticed regression of tumours in control animals treated with local injections of adrenalin alone. We made no claim to priority.

On looking up Dr. Cramer's reference to his own experiment in 1905 I find that he injected a "toxic" dose of adrenalin into cancerous mice (number not stated) with the idea of causing hæmorrhage into the tumours. Only three mice survived and "in one the tumours had diminished in size by the fifth day. The animal was then killed." So that it does not appear that Dr. Cramer observed a single instance of complete regression. The two drawings of microscopic specimens he published are such as might be obtained from certain areas in many untreated tumours and are to my mind quite unconvincing. The whole reference consists of some 13 lines of print in a paper dealing with the action of radium on tumours and was unknown to me; but even if I had been aware of its existence I do not think I should have felt justified in referring to it since it does not appear germane to the subject under investigation.

Reicher investigated the effect of local injections of adrenalin fully and got results as good as, or better than, those obtained in the controls treated by Dr. Stephens and myself. In his paper in the *Deutsch. Med. Woch.*, 1910, he claims to be the first to have used adrenalin for the cure of tumours, and I have no reason to doubt the validity of his claim. He does not mention Dr. Cramer's name. Engel, in 1912, confirmed and extended Reicher's results. Dr. Stephens and I found that injections of adrenalin at a site remote from the tumour did not effect cure. If Dr. Cramer can obtain cures in this way, which as far as I know he has not yet shown, he may still, if he is anxious to do so, claim some priority, though he might have to dispute this, amongst others, with Opitz, Vorländer and Jung, who have published good results when using adrenalin, along with cholin, trypan blue, and cerium.

Dr. Cramer considers it "obvious" (always a word to use cautiously) that local injections as a means of treatment are of little importance. Here I entirely disagree with him. The essential point made in the paper by Dr. Stephens and myself, and, indeed, the whole trend of my recent work indicate that by appropriate local treatment an active immunity can be induced which is not local but *general*. This point Dr. Cramer appears not to have appreciated fully, for I can hardly imagine that he would underrate the value of any method which, by local treatment, can effect not only the disappearance of the local growth but leaves the animal immune, against subsequent inoculations of the same tumour, in every part of its body.—I am, Sir, yours faithfully,

THOMAS LUMSDEN.

Lister Institute of Preventive Medicine, London S.W., Sept. 23rd, 1927.

BREAST-FEEDING OF TRIPLETS.

To the Editor of THE LANCET.

SIR,—In these days when many medical men and not a few medical officers in charge of welfare clinics lightly advise artificial feeding, it is refreshing to find a mother of triplets nursing her infants.

Five months ago Mrs. W. gave birth to quadruplets, one of which died at the age of 3 days, the other three, Albert, Edward, and Betty, survived and are now healthy infants weighing 13 lb., 12 lb., 12 lb. 8 oz. respectively. There are two other children aged 11 and 7. The family lives in three rooms, rent of which is 11*s.* 6*d.* weekly, and the average wage of the father is £2 12*s.*

The mother is an ordinary working woman of the South London type, not very robust, and somewhat older than her years. The method of feeding the infants is a little unusual. All three are put to the same breast at one feed, and to the other breast at the next feed, but the first comer at one feed becomes the last at the next and vice versa; one infant is therefore always second comer, which may account for its slightly lower weight. Feeds are given at roughly three-hourly intervals.

The mother's diet is not excessive. In fact, she confessed that she would eat more were "her money better." She drinks, however, three pints of milk and a quart of water daily in addition to her ordinary three cups of tea and one cup of cocoa or coffee.

She has found out that she requires adequate rest, and this, with her extra fluid intake, has enabled her to suckle her infants without difficulty.

It is well known that many women are capable of nursing more than one infant, but even so it is a little surprising that this mother has escaped the ministrations of the many who consider that the nursing of one infant is beyond the power of the average mother.

I am, Sir, yours faithfully,

Lee-road, Blackheath, Sept. 26th, 1927. GUY NEELY.

ST. MARY'S HOSPITAL.—The board of management have extended the term of office of Dr. Graham Little, M.P., as physician in charge of the Dermatological Department for a further period of five years as from Oct. 25th, 1927.

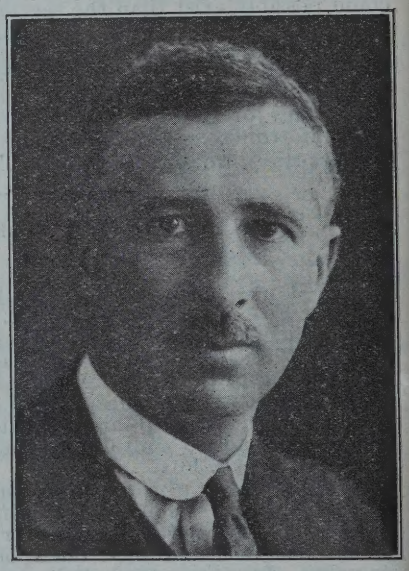
RADCLIFFE INFIRMARY, OXFORD.—In connexion with a post-graduate course at this hospital, Dr. J. Gravesen, medical superintendent of Vejlefjord Sanatorium, Denmark, will give an illustrated lecture on the Modern Treatment of Pulmonary Tuberculosis, at 3 P.M. on Friday, Oct. 14th

Obituary.

ADRIAN STOKES, D.S.O., M.D. DUB., M.R.C.P. LOND., F.R.C.S. IREL.

WE have to record the death of Dr. Adrian Stokes, Sir William Dunn Professor of Pathology at Guy's Hospital, which occurred at Lagos on Sept. 19th. Early this year he was asked by the Rockefeller Commission to go to West Africa to investigate the transmission of yellow fever, which he had previously studied on the Gold Coast. His death was due to infection by this disease. The following account of his life and work has been written by one of his colleagues.

It is impossible to estimate the loss which medical science and education have sustained by the death, at the early age of 41, of Prof. Adrian Stokes. Valuable and varied though they were, his published contributions afford no real index of his genius and of his remarkable power of inspiring clear thinking, hard work, and the best kind of scientific enthusiasm in others. Colleagues and students—and his colleagues, young and old, were among his students and always appealing to him for advice—all held him in the highest affection and esteem. He was a most open-hearted, generous, and lovable man. Save only to those whom he judged to be insincere he set no barriers in his life or his laboratory. All others were welcome and sure of his friendship and coöperation. Seldom have the love of scientific truth and a warm humanity been more closely welded in the same personality.



PROF. ADRIAN STOKES.

(Photograph by Elliott and Fry, Ltd.)

The war gave Adrian Stokes his great opportunity. He joined the R.A.M.C. on the declaration of hostilities and went to France on August 11th, 1914. From that day onward he expended himself in every conceivable way in furthering and improving the work of his own branch of the service. No matter what the task nor whether it were really his concern, provided only that it might save or help to save a single life, he would strive to ensure, and generally in person, that it was done. The incidents which helped to make him something of a legend among his friends and associates are too numerous to record, but it will not be forgotten how in September, 1914, he rode 140 miles on a shaky motor-cycle to bring a supply of tetanus antitoxin to where it was sorely needed. When typhoid fever appeared in the Guards' Brigade in those early months it was Stokes who anticipated the whole idea of the mobile laboratory by equipping his motor-cycle and sidecar (his "yoke," as he called it) with an incubator and a sergeant of the R.A.M.C., and going forth to capture (as he successfully did) the "carrier" responsible for the epidemic. He was the first in France to isolate from the blood stream the organism of gas gangrene,

although his account, through some editorial error, was held back from publication for 18 months. Early in 1915 we find him acting as the mainspring and unofficial liaison officer to the mass of bacteriological and hygienic work necessitated by a grave epidemic of typhoid fever among the Belgian refugees in the neighbourhood of Ypres. This epidemic never extended to the troops which crowded all the billets there. In the same year he was occupied with an outbreak of cerebro-spinal fever in the northern British armies, busy with the work of diagnosis, examination of carriers and contacts, and at the same time treating and instructing medical officers in the treatment of the cases with appropriate sera.

We next find him in charge of a mobile laboratory stationed for two years near Poperinghe, attached for messing purposes to No. 10 Casualty Clearing Station, and devoting every moment of his arduous days not merely to his own routine duties, but also to the bigger task of helping and inspiring others. Surgeons, physicians, and administrative staff were constantly in his debt, and yet all his work was done unobtrusively and he never sought and often failed to gain the credit for important innovations due to him. He was, in a sense, the conscience of all the medical units in his zone. Should the word go forth or his own observations suggest that this or that new method of treating wounds or shock should be put in force, it was Stokes, with his friendly, unorthodox methods of approach, who prompted the surgeons and saw, by personal contact, that the work was properly done. When it was found that warm ether anæsthesia lessened shock and saved lives, and the authorities could only allow a ration of one apparatus per C.C.S., he at once improvised, with his own hands, as many outfits as were needed. When a certain C.C.S. was flooded one morning with the victims of a bad phosgene gas attack, and oxygen supplies were short while the old method of administration with a funnel was shown to be futile, it was he who conceived the simple idea of feeding oxygen continuously to the men (four being supplied from one cylinder) through nasal catheters. The method became universal along the front, was far more efficacious than the more elaborate apparatus supplied later, has been extended to civilian practice ever since, and must have saved countless lives. All these and kindred actions were wholly spontaneous and quite outside his official sphere as bacteriologist, and yet he was never behind-hand with his very arduous laboratory tasks. In times of stress he would become anæsthetist or surgeon, but even then would often start his day early with post-mortem examinations, undertaken in the hope that they might provide useful information in relation to the effects of wounds or gas or disease. Sometimes his quick humanity would outbid his zest for scientific accuracy. Although such incidents were few, more than one war widow whose husband was found dead by the wayside on a bitter winter's night, having obtained unauthorised access to the rum jar, draws a pension to-day because a kindly pathologist found evidence of nephritis acquired "in the field" and reported "death from uræmia."

He did, again, much good work on trench nephritis dysentery, and wound infections, but his most brilliant piece of research was in connexion with an epidemic of spirochætal jaundice (spirochætosis icterohæmorrhagica), which appeared in the salient in 1916. He was the first to recognise cases clinically, and then pursued the inquiry with animal experiments and proved the disease to be identical with that first described in 1914, but more fully in March, 1916, by Japanese investigators. He showed that the rats infesting the trenches were the carriers of the spirochæte and with the aid of "spot-maps" helped to discover what parts of the trench system were responsible for the majority of the cases. This disease is clinically and in its morbid anatomy almost identical with yellow fever, if less lethal, and it was undoubtedly Stokes's work in Flanders which led to the invitation to join the Rockefeller Commissions on Yellow Fever dispatched to West Africa soon after the war and again recently. For his war services he was awarded the D.S.O., the O.B.E., and the Belgian Order of the Crown, and was several times mentioned in dispatches. Stokes went to Germany with the Army of Occupation, came through a severe illness there, and devoted his energies particularly to the big problem of venereal infection among the troops.

After demobilisation Stokes returned to his old school at Trinity College, Dublin, where he became Professor of Bacteriology. In 1922 he was asked to enter for the Chair of Pathology—the Sir William Dunn Professorship—then vacant at Guy's Hospital, and was selected from a very strong list of applicants. He quickly established himself in his new surroundings and won the friendship and eager support of his colleagues. For the students pathology was at once endowed with a new popularity and his classes were always crowded. His phraseology, always unorthodox and quaint, added to the attractiveness of his essentially practical lectures and demonstrations. For his friends, senior and junior, 4 o'clock tea in "Stokes's Lab." became quite an institution. However trivial the requests that came to him at his bench he always left what he was doing to interest himself in the problems of others. If he published but little in his later years it was partly because his time was so fully occupied and he conceived teaching to be his first function, partly because he would never publish anything incomplete, and partly because he would insist on the credit for work done in collaboration falling to the collaborator. To students with personal problems, in sickness or in sorrow, he offered, from time to time, not only his open-handed friendship and holiday companionship, but his very roof.

Of the progress of his researches at Lagos nothing official is known as yet, but from certain vivid and cheerful letters to friends it seems reasonable to suppose that things were going well, and that some of his transmission experiments had already given gratifying results. Until further news is received it can only be surmised that he became accidentally infected by one of his own mosquitoes. Death followed within a few days of the first symptoms.

The son of Henry John Stokes, an Indian Civil Servant, and grandson of the famous William Stokes, he carried on wonderfully a great family tradition. He had a brilliant career as a student. Outside his work he was a keen fisherman and a fearless yachtsman, a good cricketer, and a member of the M.C.C. He was bluff and humorous, intolerant of fools, and could be stirred to a white heat of indignation by any base action or hint of injustice. He loved Ireland and was clearly, although he never spoke on the subject, deeply injured by the circumstances and consequences of the rebellion. As has been shown, he was completely unselfish, and no man was ever more loyal to his friends and to his duty.

When, lamenting the early end to his career, we are prompted to exclaim against the waste of so valuable a life. Should we not rather pause in pride and remember that he accomplished more for his fellow-men and for the medical sciences—taking only the period from August, 1914, to his death from yellow fever in September, 1927—than most men can ever hope to accomplish in a long life-time? J. A. R.

Our Dublin correspondent writes: The death of Prof. Stokes has been felt not only as a great loss to medical science, but as a personal grief by many of the profession in Ireland. Although he spent the last five years of his life as a teacher in London, the whole of his previous career was associated with Dublin. Sprung from a family famous in medicine as well as in art and scholarship, Adrian Stokes was the grandson of William Stokes, the most famous of Irish physicians. He received his medical education at Trinity College, Dublin. His zeal for research and his scrupulous accuracy attracted the attention of his teachers, and particularly of the late Alexander Charles O'Sullivan, at that time lecturer in pathology

in Trinity College. Shortly after obtaining his medical degrees he was appointed an assistant in O'Sullivan's laboratory, where he continued to work until the war called him to other duties. In 1919 he returned to Dublin, where his colleagues hoped that he might spend a long life in adding to knowledge by his researches, and stimulating those around him by his spirit. But the period was not a hopeful one in Ireland, and no one was much surprised when, in 1922, Stokes accepted an unsought and unexpected invitation to a wider sphere of activity in London. Though Stokes thus left us we always regarded him as one of ourselves and counted his reputation among the trophies of the Dublin School of Medicine. His death brings to all who knew him well a sense of surprise as well as of personal bereavement. He was so full of vitality that one never thought of losing him by death. Intellectually a giant, in personality he retained many of the characteristics of a child. He had a child-like simplicity, a child-like honesty, and above all a child-like kindness. And he was subject, too, to the same instinctive dislikes as a child and had something of the same brusqueness in expressing them. As a class teacher he was excelled by many lesser men. He had not the faculty for putting himself in the place of the beginner, and he often over-estimated the knowledge and intelligence of his hearers. But in the laboratory it was different. No pains were too much, no help too great for him to give. He was always busy, but no pressure of work prevented his spending himself in the interest of all honest inquiries after knowledge.

Medical News.

MEDICAL DEFENCE UNION.—The annual general meeting was held at Harrogate on Sept. 24th. Sir Herbert Waterhouse, the President, who took the chair, said that the annual report for 1926–27 was a record of continued growth and progress. The Hume-Spry case had been the biggest and the most anxious case with which the Union had been concerned during the year, and had, he thought, cost more than any other action since the Union was founded. Fortunately, the members had been completely vindicated. He must, he said, "protest against the existing judicial system which permits medical practitioners, who have done their duty honestly in the interests of the public and of the patient, to be subjected to a lengthy and costly trial, because the plaintiff is able to produce affidavits from medical men who see him some months or even years after he was certified, testifying—without any inquiry of those in professional attendance on the patient at the time of, or prior to, certification—that he was not insane when certified, and that those who certified acted negligently, and/or in bad faith." Except for such affidavits the Hume-Spry case would never have gone to trial. The verdict of the jury and the remarks of the judge sufficiently indicated the value they attached to such evidence. The fact that evidence of this type was repeatedly given in court made him wonder whether the disciplinary powers of the profession did not require strengthening. The history of the Hume-Spry case was certainly a striking illustration of the benefit of membership of the Union.

In numerous other cases, continued the President, the Union had been able successfully to defend members whose professional work had been called in question, and although in some few cases they had been compelled to effect a settlement out of court by a monetary payment, he was glad to say that no single verdict had been recorded against a member of the Union. The finances were so satisfactory that it had been possible to increase still further the benefits of membership. The Council was now prepared to defend an action brought against a member in consequence of the acts or omissions in any event of a subordinate medical officer or a non-medical subordinate, and of a partner or assistant if he belonged to either of the two English Defence Societies. Also a member could now obtain protection against actions arising out of the acts or omissions of an assistant who was not himself a member of any defence society, by paying an additional annual subscription of 10s. in advance. The reciprocal arrangement with the other society as regards assistants had now been extended to partners. He must again emphasise the absolute necessity for everyone engaged in active practice to belong to the Medical Defence Union. The Union could only defend its own members, and they must be in benefit.

Referring to a circular letter issued last February to every member of the Union on the subject of X ray examinations in cases of injury to bones or joints, the President remarked that it had evidently been very much misunderstood. It had been interpreted by some as implying that a member who had not made an X ray examination in any such case would not be defended. That was not what the letter said, nor what the Council intended. It was a warning to members that in all such cases the member should in his own interests advise an X ray examination, and that when such advice was not followed, the member should for his own protection place the advice given on record by writing a letter to the patient and keeping a copy in case of future trouble. This advice was based on experience of scores of cases, but was constantly ignored, thus depriving the Council of the only evidence which as a rule made a successful defence possible. The President concluded by expressing sincere thanks to Dr. James Neal, the general secretary, and to Mr. Hempson, the solicitor, for valued help and guidance. He was certain that no society had two important officials more reliable and capable.

The report of the Council and the financial statement for the year 1926 were adopted unanimously. Dr. E. C. Greenwood, Dr. H. Robinson, and Mr. W. G. Spencer, the retiring members of Council, were re-elected. The auditor, Mr. Lewis Hardy, F.C.A., was reappointed, and authority was given for the payment of the first-class railway fares (with expenses if detained for the night) of members of the Council attending council meetings from provincial centres.

The President referred to certain objections[1] raised by the Todmorden Medical Society to a circular letter issued by the Council on Feb. 15th, 1927, to members of the Union only, on the subject of X ray examinations, and explained that the Council had invited any members of the Todmorden Medical Society who were also members of the Medical Defence Union, to attend the annual meeting and state their views. No member of the Todmorden Medical Society was present, and after some discussion a resolution approving the circular letter issued by the Council was unanimously passed, members of Council who were present abstaining from voting at the request of the President.

A hearty vote of thanks to the President and Council for their services during the past year was passed with acclamation.

MEDICAL SOCIETY OF LONDON.—The annual general meeting will be held on Monday, Oct. 10th, at 8 P.M., after which Mr. H. W. Carson will give a presidential address on Surgery in the Early Days of the Society. Other forthcoming arrangements include a discussion on the Duodenal Tube, at 8.30 P.M., on Oct. 24th (introduced by Dr. B. B. Vincent Lyon), and a clinical evening at 8 P.M., on Nov. 14th.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—From Oct. 3rd to 15th, from 10 A.M. to 4 P.M. daily, there will be a course at the National Hospital for Diseases of the Heart (entry limited to 20). The Central London Throat, Nose and Ear Hospital holds it usual October course from the 3rd to the 22nd. It consists of (1) a clinical course, occupying most of each day, which may be taken alone if desired, (2) an operative surgery class from 10 to 11.30 A.M. daily, (3) a practical course in peroral endoscopy, and (4) a course in pathology and bacteriology suitable for D.L.O. students. The numbers for the three last courses are limited. On Oct. 4th the London School of Hygiene and Tropical Medicine will start a series of clinical demonstrations, to be given on Tuesdays and Thursdays at 2 P.M. until Oct. 28th. At 5 P.M. on Fridays, from Oct. 7th to 28th (inclusive), a course in Antenatal Diagnosis and Treatment will be given by Prof. Louise McIlroy at the Royal Free Hospital (entry limited to 10). The subjects of other courses are: Diseases of Children at the Paddington Green and Victoria Hospital for Children, from Oct. 17th to 29th; Gynæcology, at the Chelsea Hospital, Oct. 17th to 28th; Electrotherapy, at the Royal Free Hospital, Oct. 12th to Nov. 2nd; and Ophthalmology, at the Royal Eye Hospital, Oct. 24th to Nov. 5th. On Oct. 3rd a two months' course in neurology will begin at the National Hospital, Queen-square. November courses include two late afternoon courses for practitioners, and courses in Diseases of Children, Diseases of the Chest, Neurology, Proctology, Urology, and Venereal Diseases. A series of lectures, entitled Practical Hints on Medicine, Surgery, and the Applied Specialties, is to be given on Mondays, at 5 P.M., in the Lecture Room of the Medical Society, Chandos-street, W. 1, beginning on Oct. 17th. Series of demonstrations will start during the same week. Both lectures and demonstrations will be open to members of the medical profession without fee. Copies of syllabuses are obtainable from the Secretary of the Fellowship at 1, Wimpole-street, London, W. 1. They will be sent regularly on publication if desired.

[1] THE LANCET, 1927, i., 1108 and 1153.

ROYAL INSTITUTE OF PUBLIC HEALTH.—It is reported that the Council of the Institute has decided to bestow the Harben Gold Medal for 1928 upon Sir Ronald Ross, F.R.S., director-in-chief of the Ross Institute and Hospital for Tropical Diseases.

CHARING CROSS HOSPITAL MEDICAL SCHOOL.—The Huxley lecture will be delivered by Sir Archibald Garrod, F.R.S., Regius Professor of Medicine in the University of Oxford, on Thursday, Nov. 24th. The subject will be Diathesis.

LIVERPOOL PSYCHOLOGICAL SOCIETY.—Dr. Barton Hall will deliver a presidential address to this society on Dreams and Dreaming, at the University of Liverpool, on Oct. 4th. Details of the society's programme may be had from the secretary at the University.

A SISTER'S EFFORTS FOR WESTMINSTER HOSPITAL. A sister at Westminster Hospital has by her own efforts collected the sum of £600 for the perpetual endowment of a children's cot in the hospital.

INVALID CHILDREN'S AID SOCIETY.—The new Hospital and Home of Recovery for Heart Cases (Children) at West Wickham, Kent, will be opened on Thursday, Oct. 6th, at 3 P.M., by Lady Lennard.

ST. MARY'S HOSPITALS, MANCHESTER.—During the year 3269 patients were treated by the maternity department—1489 in their homes and 1780 in the wards. The mortality-rate for all admissions is 2·3 per cent.

A HOSPITAL FOR CANVEY ISLAND.—A committee has been formed to raise funds for a hospital for Canvey Island. An excellent piece of land has been offered as a site on the main road near the recreation ground, with a further space at the rear for any future extensions.

SCUNTHORPE WAR MEMORIAL HOSPITAL.—A second gift of £5000 has been received by Scunthorpe War Memorial Hospital from Mr. Stephen Cliff, of Leeds. The foundation-stone of the hospital will be laid on Oct. 13th by Lord Buckland, and the institution when completed will have 112 beds and will have cost over £100,000.

ST. ANDREW'S HOSPITAL, NORTHAMPTON.—A new reception hospital at St. Andrew's Hospital for Mental Diseases will be opened by Viscount Cave, the Lord Chancellor, at 3 P.M. on Friday, Oct. 14th. At the ceremony Sir Frederick Willis, Chairman of the Board of Control, will make an initial statement.

FAMILY ENDOWMENT SOCIETY.—A public conference has been arranged by this society to be held on the evening of Friday, Oct. 14th, and the afternoon and evening of Oct. 15th at the London School of Economics, Houghton-street, W.C. Sir William Beveridge will give an address on the case for Family Allowances; whilst the other speakers will include Mr. R. A. Fisher, D.Sc., Mr. H. N. Brailsford, Principal John Murray, and Mr. J. L. Cohen. Prof. V. H. Mottram will speak on the Physiological Basis of the Minimum Wage. Particulars may be had from the hon. secretary of the society at 24, Tufton-street, London, S.W. 1.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.
TUESDAY, Oct. 4th.—5.30 P.M. (Cases at 4.30 P.M.) ORTHOPÆDICS. Presidential Address: Mr. W. Rowley Bristow: Arthrodesis, to be followed by a discussion. Relevant cases only will be shown.
WEDNESDAY.—5 P.M., HISTORY OF MEDICINE. Paper: Dr. Kenneth J. Franklin: Valves in Veins—an Historical Survey.

LECTURES, ADDRESSES, DEMONSTRATIONS &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.
MONDAY, Oct. 3rd, to SATURDAY, Oct. 8th.—NATIONAL HOSPITAL FOR DISEASES OF THE HEART, Westmoreland-street, W. Special post-graduate course in Cardiology, occupying all day from 10 A.M. to 4 P.M.—CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road, W.C. Special course in Laryngology, Rhinology, and Otology, including Operative Surgery, a practical course in Peroral Endoscopy, and a course in Pathology and Bacteriology suitable for D.L.O. Students. All day.—LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE, Endsleigh-gardens. Tues. and Sat., clinical demonstration on Diseases in the Tropics.—NATIONAL HOSPITAL, Queen-square, W.C. Special two months' course in Neurology.—ROYAL FREE HOSPITAL, Gray's Inn-road, W.C.—On Fri., at 5 P.M., demonstration on Antenatal Diagnosis and Treatment. Further information from the Secretary, Mayfair 2236.

WEST LONDON HOSPITAL, POST-GRADUATE COLLEGE, Hammersmith, W.
MONDAY, Oct. 3rd.—11 A.M., Mr. Tyrrell Gray: Surgical Wards. 2 P.M., Mr. Donald Armour: Operations. 4.30 P.M., Sir H. Simson: Post-Graduate Education in Obstetrics.
TUESDAY.—10 A.M., Medical Registrar: Ward Demonstration. 2 P.M., Mr. Sinclair: Surgical Out-patients. 3 P.M., Dr. Pritchard: Medical Wards.
WEDNESDAY.—10 A.M., Dr. Owen: Medical Diseases of Children. 2 P.M., Mr. Gibb: Eye Department.
THURSDAY.—10 A.M., Dr. Grainger Stewart: Neurological Department. 2 P.M., Dr. Ironside: Medical Out-patients. 3 P.M., Mr. Simmonds: Surgical Out-patients.
FRIDAY.—10 A.M., Dr. Dowling: Skin Department. 2 P.M., Mr. Addison: Operations. 4.30 P.M., Mr. Vlasto: Mastoiditis (Lecture).
SATURDAY.—9.30 A.M., Dr. Burnford: Bacterial Therapy and Ward List. 10 A.M., Dr. Owen: Medical Diseases of Children.
Operations, Medical, Surgical, and Special Out-patients, daily 10 A.M. to 5 P.M.; Saturdays, 10 A.M. to 1 P.M.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.
MONDAY, Oct. 3rd.—2.30 P.M. to 5 P.M., Medical, Surgical, and Gynæcological Clinics. Operations.
TUESDAY.—2.30 P.M. to 5 P.M., Medical, Surgical, Throat, Nose, and Ear Clinics. Operations.
WEDNESDAY.—2.30 P.M. to 5 P.M., Medical, Skin, and Eye Clinics. Operations.
THURSDAY.—11.30 A.M., Dental Clinic. 2.30 P.M. to 5 P.M., Medical, Surgical, and Ear, Nose, and Throat Clinics. Operations.
FRIDAY.—10.30 A.M., Throat, Nose, and Ear Clinics. 2.30 P.M. to 5 P.M., Surgical, Medical, and Children's Diseases Clinics. Operations.
There will also be a special demonstration of medical cases on Monday, Oct. 3rd, at 2 P.M. and of X ray cases on Wednesday, Oct. 5th, at 2.30 P.M. by Dr. Whiting and Dr. Shanks respectively.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 49, Leicester-square, W.C.
TUESDAY, Oct. 4th.—5 P.M., Dr. J. H. Stowers: Introductory.
THURSDAY.—5 P.M., Dr. J. M. H. MacLeod: Anatomy of the Skin.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE COURSE.
TUESDAY, Oct. 4th.—4.15 P.M., Mr. W. H. Hey: The Past Year's Advances in Surgery.
FRIDAY.—Dr. E. M. Brockbank: Dr. John Ferriar (1761–1815); Public Health Affairs.

Appointments.

Queen Charlotte's Maternity Hospital: TREE, J. R., M.R.C.S., L.R.C.P. Lond., Senior Resident Medical Officer; PEIRCE, G. E. G., M.R.C.S., L.R.C.P. Lond., Assistant Resident Medical Officer; WILLIAMS, J. C., M.R.C.S., L.R.C.P. Lond., District Resident Medical Officer.

Vacancies.

For further information refer to the advertisement columns.

Ascot, Heatherwood Hospital.—Res. Asst. M.O. £300.
Belgrave Hospital for Children, Clapham-road, S.W.—H.P., Asst. H.P., and H.S. Each at rate of £100.
Bradford Royal Infirmary.—Two H.S.'s and H.P. Each £150.
Bury Infirmary.—Third H.S. At rate of £150.
Carshalton, Surrey, Queen Mary's Hospital for Children.—Jun. Asst. M.O. £500.
Central London Throat, Nose, and Ear Hospital, Gray's Inn-road, W.C.—Hon. Asst. Out-patient. Reg.
Dumfries, Crichton Royal Mental Hospital.—Asst. Phys. £350.
Dundee Royal Infirmary.—Asst. S.
Durham County Council, &c.—Dist. Tub. M.O., &c. £500.
Exeter, Royal Devon and Exeter Hospital.—H.P. Also Cas. O. At rate of £130 and £100 respectively.
Gloucestershire Royal Infirmary, &c., Gloucester.—Res. Surg. O. and Asst. H.S. At rate of £175 and £120 respectively.
Grosvenor Hospital for Women, Vincent-square, S.W.—Hon. Anæsthetist.
Hampstead General and North-West London Hospital, Haverstock-hill, N.W.—Cas. M.O., H.P. Also H.S. Each at rate of £100.
Hendon Union, Redhill Hospital, Edgware.—Res. Deputy Med. Supt. £300.
Hospital for Consumption and Dis. of Chest, Brompton, S.W.—H.P. £50 for six months.
Hospital for Epilepsy and Paralysis, Maida Vale, W.—Hon. Anæsthetist. Also Res. M.O. and H.P. At rate of £150 and £100 respectively, and Med. Reg. £100.

Hospital for Sick Children, Great Ormond-street, W.C.—H.S., H.P., and Asst. Cas. O. Each £50.
Hospital of St. John and St. Elizabeth, 40, Grove-End-road, N.W. Res. H.S. At rate of £75.
Hove Hospital, Sackville-road.—Res. M.O. £150.
Jersey General Hospital and Poor-Law Infirmary.—Res. M.O. £200.
Leeds, City Sanatorium, Gateforth.—Res. M.O. £400.
Liverpool Royal Children's Hospital, Myrtle-street.—Res. Cas. O. £120.
London Hospital, E.—Asst. P. Also 1st Asst. and Reg. to one of the Med. Firms, and 1st Asst. and Reg. to one of the five Surg. Firms. Each £300.
London Temperance Hospital, Hampstead-road, N.W.—Clin. Asst., Ear, Nose and Throat Dept.
Manchester Maternity and Child Welfare Centres.—Infant Clinic M.O. £600.
Manchester Royal Infirmary.—Jun. Anæsthetist. £125.
Middlesex Hospital Medical School, London, W.—2nd Demonstrator for the Dept. of Physiology.
Mildmay Mission Hospital, Austin-street, Bethnal Green, E.—Hon. S. to Ear, Nose, and Throat Dept.
Miller General Hospital for South-East London, Greenwich-road, S.E.—Out-patient O. £150.
North Middlesex Hospital, Edmonton, N.—Res. M.O. £200.
Norwich, Norfolk and Norwich Hospital.—H.P. and H.S. Each £120.
Oswestry, Shropshire Orthopædic Hospital, &c.—Two H.S.'s. Each £200.
Ovamboland, South-West Africa.—Dist. S. £1000.
Paddington Green Children's Hospital, London, W.—H.P. At rate of £150.
Princess Louise Kensington Hospital for Children, N. Kensington. H.P. and H.S. At the rate of £100 and £75 respectively.
Queen's Hospital for Children, Hackney-road, E.—H.S. At rate of £100.
Rochdale Infirmary and Dispensary.—Jun. H.S. £200.
Rotherham Hospital.—H.P. £180.
Royal Free Hospital, Gray's Inn-road, W.C.—Cas. O. At rate of £150. Obstet. and Gynæcological Unit, Sen. Asst. part-time. £350. Second Asst. £500. Third Asst. £270. Also Res. Asst. Pathologist. £150.
Royal National Orthopædic Hospital, 234, Great Portland-street, W.—Five Registrars. Each £100.
Royal Northern Hospital, Holloway, N.—Med. Reg. £100.
St. Mark's Hospital for Cancer, City-road, E.C.—Radiologist. Also H.S. At rate of £75.
St. Paul's Hospital for Diseases of the Genito-Urinary Organs, &c., Endell-street, Holborn, W.C.—Hon. Clin. Asst.
Seamen's Hospital, Albert Dock, Connaught-road, E.—Ophthalmologist.
Sheffield Royal Hospital.—Hon. Asst. P.
South London Hospital for Women, Clapham Common, S.W.—Clin. Asst. £1 1s. per attendance.
Sudan Government, Wellcome Tropical Research Laboratories, Khartoum.—Asst. Bacteriologist. £E.720.
Tunbridge Wells Eye and Ear Hospital.—H.S. £150.
Victoria Hospital for Children, Tite-street, Chelsea, S.W.—Hon. Med. Reg. and Hon. Surg. Reg. Also Hon. Out-patient Anæsthetist. 10*s.* 6*d.* per attendance.
Warwick County Mental Hospital, Hatton.—Asst. M.O. £300.
Warwickshire and Coventry Joint Committee for Tuberculosis.—Asst. Tuberculosis O. £650.
West Sussex County Council and Bognor Urban D.C.—Asst. County and Dist. M.O.H. £700.

Vacant appointments for Certifying Factory Surgeons are announced at Kenninghall (Norfolk) and at Ellon (Aberdeenshire).

Births, Marriages, and Deaths.

BIRTHS.

COOKSEY.—On Sept. 23rd, at a nursing home, Worthing, Sussex, the wife of Wm. O. Cooksey, L.D.S.R.C.S. Eng., of a daughter.
FISCHER.—On Sept. 21st, at King's Langley, the wife of Dr. Reginald Fischer, of a daughter.

MARRIAGES.

LLOYD—SOLOMON.—On Sept. 15th, at Swansea, William Ernest Lloyd, M.D., M.R.C.P., to Irene Olive Neville Solomon.

DEATHS.

CHIPPERFIELD.—On Sept. 23rd, at Epsom, Thomas John Burgoyne Pearse Chipperfield, M.R.C.S., L.R.C.P., in his 72nd year.
COLEMAN.—On Sept. 22nd, at Leicester, Denis Joseph Coleman, M.B., aged 31.
JOULE.—On Sept. 19th, 1927, at Claremont, Rose Hill, Dorking, John Samuel Joule, M.D. Lond., late of Pinner, Middlesex, formerly of Paddington, aged 77 years.
LANKESTER.—On Sept. 19th (suddenly), at Eastbourne, Ralph A. R. Lankester, M.D., of Bradford, Yorks.
O'KELLY.—On Sept. 25th, at The Acland Home, Oxford, Thomas O'Kelly, M.D., late of Chipping Norton, aged 70 years.
STOKES.—On Sept. 19th, at Lagos, West Africa, Prof. Adrian Stokes, M.D., D.S.O., O.B.E., in his 41st year.
WALLACE.—On Sept. 24th, at New Romney, Kent, John Jamieson Wallace, M.D.

*N.B.—A fee of 7*s.* 6*d.* is charged for the insertion of Notices of Births, Marriages, and Deaths.*

Notes, Comments, and Abstracts.

CLEAN MILK.*

BY FREDERICK T. G. HOBDAY, C.M.G., F.R.C.V.S., F.R.S. EDIN.,
PRINCIPAL OF THE ROYAL VETERINARY COLLEGE OF LONDON.

IT seems an anomaly in this twentieth century, when so much is being done in the domain of hygiene, to speak of anything which is sold for human consumption as "clean." The anomaly is all the greater since it only needs complete understanding and determined collaboration between the medical and veterinary professions to ensure that milk shall always be clean and never anything else.

Method, not Equipment.

In going about the country I have found that the public is not only very ignorant of the dangers of drinking contaminated milk but is also very apathetic; whilst the condition of many of our dairies and cowsheds and the way in which milk is obtained from the cow can only be described as absolutely filthy. One does not expect to find cows in palaces, but one does expect that they shall be kept healthy and reasonably clean. The statement has been made over and over again that the cost of producing *clean* milk is prohibitive to the average farmer, but that this is not so is evident from the results obtained in districts where capable organisers and enthusiastic members of agricultural and dairying committees have taken the matter in hand.

In a recent number of the *Veterinary Journal* Mr. W. A. Hoy, of the National Institute for Research in Dairying, gives briefly the following rules to be observed in producing milk: 1. The long hair on and around the udder is to be kept clipped to make cleaning easier and to avoid the accumulation of dirt. 2. Before each milking the udder and its immediate surroundings are washed clean. 3. The milker's hands are washed between the milking of each cow. A clean milking suit is worn and a scrubbed stool is used. 4. The first milk from each quarter is rejected and the milk taken into a sterilised small-topped covered milking pail. 5. The milk is strained and cooled immediately. 6. After milking, all utensils are washed clean and then sterilised by steam. This is a very important factor in influencing the bacteriological count of the milk.

As is pointed out by Mr. Steele Bodger, in the May issue of the same journal, "it is impossible to emphasise too strongly that it is *method* and not *equipment* which is the all-important factor in the production of clean milk. . . . It is the 101 little things which are so important."

All the rules given above are easy to follow and none is impossible even to the poorest aspirant to dairy farming; but the following extract from a letter recently sent to me by a veterinary surgeon in Lincolnshire shows how far they are neglected, and emphasises the necessity for educational propaganda on these lines: "In this part of Lincs. the ordinary dairyman and farmer has no idea of hygiene and cleanliness; 95 per cent. are wet milkers. They begin by milking a little on to their hands (which in the majority of cases are dirty), then milk into the pail; when their hands and fingers become sticky they dip them into the milk. Just imagine a cow with short teats and a milker with dirty hands. I rarely drink cow's milk and prefer goat's milk—and milk the goat myself."

It would be invidious, perhaps, to mention any one district as being in advance of another, but the propaganda and practical pioneer work done by the National Institute for Research in Dairying (University of Reading), under Dr. Stenhouse Williams and his band of scientific workers, certainly does stand out for what it has done amongst the dairy farms of Berkshire. According to Mr. Hoy, about one-sixth of the milk-supply of Reading (which is a town of 100,000 inhabitants) is Grade A (tuberculin tested), and it is interesting to note that no other graded milk, raw or pasteurised, is sold in the town. Sixty per cent. is bought by private consumers, of whom half belong to the working classes, and the remaining 40 per cent. is taken by hospitals and other institutions. The retail price in the summer is 3½*d.* per pint and in the winter 4*d.*, as compared with 3*d.* and 3½*d.* for ordinary milk. What has been done in Berkshire can be done by other counties. Only yesterday, in Somersetshire, I had the opportunity of seeing a dairy herd of 70 cows supplying Grade A (tuberculin tested) milk from a collection of ancient

* Being the substance of an address delivered before a joint meeting of the Guildford Branch of the British Medical Association and the Royal and Southern Counties Branches of the National Veterinary Association.

buildings which had been completely modernised and brought up to date a few years ago when building was dear, at an expenditure of less than £900—the major part of which was spent upon the impervious transformation of the flooring and walls. This expenditure has already repaid its owner several times over.

Tuberculosis.

Lieut.-Colonel F. E. Fremantle has summed up the requirements of the public health in respect of the milk-supply as follows: "The problem then is to provide at the house door a cheap and plentiful supply of clean milk, free from the germs of tuberculosis. It concerns the health both of man and of animals, and the Ministries, therefore, of Health and of Agriculture. At the farm it involves care in the health, management, and breeding of the cattle; attention to buildings, equipment and water-supply, to the milkers and their methods, to proper treatment of the milk and proper supervision throughout. In transit it depends on speed, protection, and coolness. . . . At its destination the chief need is for proper storage of the milk." In that paragraph we have in a nutshell the principles which underlie a supply of clean milk to the general public, and it illustrates admirably the need for collaboration between the medical and veterinary professions. Milk needs attention in its whole passage from the cow to the consumer. In the cow itself there are questions of health and cleanliness. The statement is made again and again that there are practically a million cows suffering from tuberculosis in Great Britain, and although only a comparatively small proportion of these have tuberculosis of the udder, it is admitted that the question of eradication is not only one of cost but one of expediency.

The United States are waging war on tuberculosis on a large scale under what is known as the "accredited herd" and "area eradication" plans. It is estimated that in the States there are already 13 million cattle which are free from tuberculosis, and the districts in which they are kept are so hemmed in with strict regulations and veterinary supervision that it is difficult, if not impossible, to reintroduce amongst them cattle which are not certified as free from this disease. What has been done in America can be done in Great Britain, and when once tuberculosis has been stamped out, our insular position ought to make it comparatively easy to keep our herds free.

That the new Bovine Tuberculosis Order (1925) is not perfect has recently been brought to the notice of the medical and veterinary professions by Dr. William Savage.[1] The Order throws the onus of diagnosing and reporting a suspected case of tuberculosis on the owner, but the owner has not sufficient knowledge to make the diagnosis until his animal has become diseased in an advanced stage, and by that time it has probably infected others. The deadly work has thus been done before the veterinary inspector sees the herd, and the obvious remedy is that cattle should all be periodically and regularly inspected by qualified veterinary experts. As Dr. Savage says, "It should be made a duty under the Order to report all animals *suspected* to belong to one of the designated groups. . . . The local authority should provide veterinary assistance, free of charge, to ascertain if these suspected animals did come under the Order. As a natural corollary any owner found to have an animal in the advanced stage of tuberculosis which he should have reported (and did not) as a suspected animal, would be fined and no compensation paid for slaughter. This would increase his interest in the problem. The benefit of free veterinary assistance for suspected animals would be of great assistance to owners of herds, and only the neglectful, indifferent farmer would be penalised. It would prevent some of the scandals which occur at present of cows being deliberately milked to the bitter end, although clearly in an advanced stage of tuberculosis, and then when no longer of any use as milkers being reported and compensation claimed."

Inspection.

To put the inspection of milk from the cow to the consumer on a satisfactory basis, the inspection board, to be complete, should have a medical officer of health, a veterinary officer of health, and a sanitary inspector. Each would find plenty to do in his own legitimate sphere and neither would overlap the other in the performance of his duties. At the present time in England it is not an exaggeration to say that there are many hundreds of milking sheds in which the inspector appointed by the Ministry of Health, usually a medical man, has never set foot, and it is not far from the truth, too, to say that the official inspector, even if he tries to perform his duties properly, often has no practical knowledge of what he is supposed to inspect. The inspection of the living animal is obviously the job of the veterinarian, and it seems a peculiar anomaly in 1927 still to find an attempt to perform such duties by the medical officer of health or the sanitary inspector.

Milk in Bottles.

Bottling of milk is not always carried out on the most hygienic lines and is apt to give a false sense of security to the public. A few of its disadvantages have lately been enumerated by Dr. E. G. Gibbs-Smith, who goes so far as to say that "the bottle in commonest use is thoroughly unhygienic. The narrowness of the neck of the bottle makes it difficult to clean the inside. The groove round the bottom inside edge, occasioned by the convex shape of the base, is a more serious objection, because it affords a place for the accumulation of congealed milk. But the worst defect is the groove constructed around the inside of the neck for the purpose of holding the disc in place. In this tiny hollow germs and dust inevitably collect. The method of sealing with a disc is bad in itself. The bottles are opened in 99 cases out of 100 by pressing in the disc with the finger and so letting into the milk whatever may have collected on the outside. The amount of dust which must accumulate when these bottles are left on the stairways of flats, at street doors, and in areas is obvious, and in addition, there is a grave risk of contamination by animals, male dogs especially." Dr. Gibbs-Smith mentions the difficulty of cleansing and sterilising these bottles where the cleansing is done by hand, and also gives an instance of what I myself have actually seen—a man refilling a bottle in the street from a can and sealing it with a disc from his pocket. Not long ago THE LANCET [2] reported a case in which the Brighton magistrates fined a milk roundsman for this offence, whilst a further instance was reported to me by a veterinary student who wrote: "It occurred about 10 A.M. one Saturday morning in a district of the North of London and I was an eye-witness. A milkman was standing by the side of the pavement with the usual milk cans on wheels, tap attached and all complete. The boy collected bottles from the houses as he went along, and brought them to the milk barrow, where the man deliberately filled them up again, and the boy put his hand into his greasy coat pocket, pulled out some of the round cardboard discs, and affixed them firmly with his dirty fingers. Replacing the full bottles on the barrow, the man proceeded on his journey and delivered them to his unsuspecting customers. The making of hygienic regulations is one thing, and their carrying out is another." We shall probably live to see carried out Dr. Gibbs-Smith's suggestion that distributors of milk should use some sort of cardboard container which could be used once and then destroyed.

Experience Abroad.

Last year I took a party of veterinarians to Denmark and Sweden with a view to getting first-hand information about the methods in use in those countries. We visited a number of farms, and in many of them machine-milking was the only method adopted. Those who owned the dairy herds spoke of it in the highest terms both from the point of view of cleanliness and economy of labour. In some of the herds the cows were milked three times a day.

Copenhagen, with over 700,000 inhabitants, is mainly supplied by the Copenhagen City Milk Distributing Company, who get their milk from about 3500 farms with an aggregate of about 55,000 cows. Stockholm, with some 450,000 inhabitants, derives most of its milk from a big coöperative farmers' and milk sales organisation, popularly known as the "Milk Central." The principles upon which they are run are very similar. Dairy farmers apply for membership and are required to hold shares in proportion to the average number of cows they milk. Interest is paid on the money invested and there is a fixed rate for the milk, with profit distributed in accordance with the quantities delivered. The organisation in Stockholm came into being in 1915 when there were 1523 members with an average of 22 cows each. In January, 1927, there were 7260 members, with an average of 12 cows each, so it will be seen that it is not all made up of large dairies. The hygienic control of the milk commences at the farms from which it is obtained, as all the cattle are examined once a month by veterinary surgeons who have strict instructions to deal at once with any sick beast and especially to be on the look-out for tuberculosis. The veterinary surgeon has to report upon the general cleanliness of the cows and the cowsheds and also upon the quality of the food given. Samples of milk are regularly sent to the laboratory to be tested in regard to appearance, taste, smell, purity, and fat-content. And after passing through certain cooling and cleansing processes on arrival at the depôt, the milk is put into sterilised bottles, capped, and despatched to the customer. Almost everything is done by machinery and neither the bottles nor milk are touched any more than is necessary by the hands of the milkers.

[1] THE LANCET, 1927, i., 722.

[2] THE LANCET, 1926, ii., 1287, and 1927, i., 204.

The Situation in England.

Although probably it would be correct to say that Denmark did a lot of pioneering, it would not be fair to give the impression that we are not moving in the same direction in Great Britain. Work on similar lines is being done by such companies as the United Dairies Company and others in our large cities. The part played by super-heated steam in sterilisation and its comparatively economical application is now so well understood, owing largely to the propaganda work of our large dairy companies, that the high-pressure boiler, with its steam pipes and sterilising cupboard and appurtenances, is installed as one of the first essentials in starting a successful dairy. The dairies supplying Manchester, Birmingham, Sheffield, and Edinburgh—to mention only a few of the large towns where properly organised inspection by medical and veterinary officials exists—are shining instances of the benefit which has resulted from collaboration over the question of clean milk between the two professions. This collaboration is essential, and the situation is in our hands if we assert our power and practise what we preach. No family would go against the word of its medical adviser, and the veterinary profession is prepared to work wholeheartedly to carry out the essential legal enactments. There could be no better illustration of the necessity for the collaboration of the two branches of medicine—human and veterinary. A great deal can be done to promote the production of clean milk if the practising doctor and the practising veterinarian, by being particular in regard to the milk they and their families drink, set an example to the public, and if they put in a word in season on every possible occasion. We have it in our power during the daily course of our lives to assist enormously by our words and actions the production of a clean supply of what is a necessity to the health of the nation.

DAIRY RESEARCH AND THE FARMER.

To the Editor of THE LANCET.

SIR,—As a farmer I am sometimes asked whether all the talk one hears nowadays about research in dairying is of any real interest to me, and whether I find that the work done at the National Institute for Research in Dairying at Shinfield, near Reading, is of any direct value. The general impression appears to be that this work is of interest only to a few wealthy people who farm for a hobby with a gay disregard of cost, and that well-groomed cows, with nicely washed udders, together with smart-looking milkers in spotless white overalls may look very well at an agricultural show, but can find no place in the routine of an ordinary farm. Most people are aware that, largely owing to the efforts of the staff at Shinfield, it is now possible to buy milk which is remarkably free from bacteria, and which is produced by cows which have passed certain tuberculin tests. But this super-milk is expensive to produce, and commands a high price, so that only a comparatively small number of people can afford to buy it. The greater part of the population is still consuming "ordinary" milk, which is sold with no guarantee as to cleanliness, and it is often asked whether the work of the Institute has any influence upon the production of this class of milk. The reply is a decided "yes."

It is unfortunate that, as a rule, the producer of "ordinary" milk is paid the same price per gallon, whether he makes an effort to keep it really clean or no, as a little encouragement in this direction would go a very long way. Luckily, however, cleanliness has several advantages from the farmer's point of view. Losses through milk turning sour become rare or disappear altogether, udder troubles are reduced, and the cowmen take a much keener interest in their work. Also in these days of over-production it is an increasingly important point that a farmer who has a reputation for producing really clean reliable milk can always find a ready market for it.

The National Institute for Research in Dairying owns a herd of cows, and farmers in the district are able to see for themselves that it is possible to produce really clean milk with little extra trouble and without expensive equipment or elaborate cowsheds. The methods in use have been evolved after some years of experience, and as they have always been subject to the criticism of visiting farmers they are simple and practical as well as efficient. Hence it is not surprising to find that they have been widely adopted in the district. Farmers are always cautious about taking up new ideas recommended by an institution which is not being run for profit, but when once the ideas have been put into practice by a few successful farmers and are reported upon favourably, the others are ready to follow suit. Thus the clean milk movement, which started slowly, has now gathered considerable impetus; more and more farmers are adopting the new ideas, and the general standard of cleanliness is much higher than it was a few years ago. The modern farmer's faith in the scientist is much greater than the general public realises or he himself admits, and the above indicates one of many ways in which the teaching of the National Institute for Research in Dairying is taking immediate effect, to the benefit of the farmer himself and of the general public.

I am, Sir, yours faithfully,

Tilehurst, Berkshire, Sept. 9th. DAIRY FARMER.

A PORTABLE ELECTROCARDIOGRAPH.

THE Portable Electrocardiograph which has been recently placed upon the market by the Victor X Ray Corporation, Ltd., is an interesting instrument in that it incorporates many new features. Whereas in the usual electrocardiographs the action current of the heart is recorded by an extremely sensitive galvanometer, in this the heart current is amplified by a special three-tube valve amplifier, and is recorded by a ruggedly constructed galvanometer of the mirror type. The principle of amplification of low potential currents prior to recording has been used for some years past by experimental physiologists, both in this country and the United States, but, while inherently successful, the practical difficulties have required much patience and care. The present instrument is said to be extremely simple in operation, and requires no special treatment; it is portable though heavy, and wherever it is placed, there it is said to function satisfactorily; the jar and vibration of transport do not affect it. The makers state that the deflection time is 0·001 second or less—an extremely short period; and it is a pity that definite evidence of this feature is not available. There is no separate time marker, the motor controlling the film being held capable of such uniform speed that the time intervals can be measured on an auxiliary scale which is supplied. This, from the point of view of accurate time measurements, is a grave disadvantage. The general advantages that the makers claim beyond those already noted are that no compensating resistance device for the patient's skin resistance is necessary, that it can be used in daylight, the records are free from confusion owing to the absence of vertical and horizontal lines, and that it avoids the troubles associated with a sensitive string galvanometer. It is an instrument which is interesting because of the many new features, but at the moment there is no evidence available that several of the special claims made by the makers are justified, and they remain to be verified by experience. The price is not yet fixed, but is said to be about £400. The address of the makers is 314–322, Regent-street, London, W.1.

THE ROYAL FREE HOSPITAL.

To the Editor of THE LANCET.

SIR,—It is just 50 years since the Royal Free Hospital opened its wards for the clinical instruction of the students of the London School of Medicine for Women. During this period the development of the hospital has led to many changes. In 1877 there were just over 100 beds; now there are 268. These include 68 beds in the unit of obstetrics and gynæcology, and 20 in the children's wards. The Royal Free was the first hospital in England to have a unit of obstetrics and gynæcology, and is, I think, still the only general hospital which provides accommodation for venereal obstetric cases. In 1877 the out-patient department was held in the basement of the hospital; now there is a spacious out-patient hall, with airy, light consulting rooms, each supplied with several small rooms for the examination of patients. The casualty department was formerly a small room at the gate; now there is a good waiting hall with adequate accommodation for the examination and dressing of the patients, a casualty theatre, and four observation beds, two for men and two for women. The hospital now has a cardiograph room, X ray and treatment rooms, an electro-therapeutical and massage department, light treatment, orthopædic and dental departments, and many other special departments. The "Alfred Langton Home" provides a bedroom for each nurse, with large recreation and sitting-rooms, and a dining-room with small tables. The Home is not yet completed owing to lack of funds, and some 50 nurses sleep in houses in Mecklenburgh-square, and a few in the main hospital. It is desired to complete the nurses' home at the earliest possible moment. Nine private wards have been provided in the hospital. These are in constant demand, and the honorary staff greatly desire that they may be doubled or trebled in number. This could be done if the nurses' home was completed. The annual cost of the hospital has increased from £7200 to £72,000, partly due to the increased price of all goods and salaries, and partly to the increased number of beds.

I should be glad if former students who visit London, and others interested in the development of this hospital, will let me know and I will arrange for them to see it. Contributions from any readers of THE LANCET would, at this time of remembrance, be warmly welcomed.

I am, Sir, yours faithfully,

Gray's Inn-road, W.C., Sept. 22nd. MAY THORNE, Hon. Sec.

*** The address of the Royal Free Hospital Centenary Appeal is 24, Mecklenburgh-square, London, W.C.1.—ED. L.

John B. Murphy Oration

ON THE

BIONOMICS OF ANIMAL REPRODUCTION

IN RELATION TO TUMOURS AND CANCERS.

Delivered at Detroit, Michigan, on Oct. 3rd, 1927,

BY SIR JOHN BLAND-SUTTON, BART., F.R.C.S. ENG.,

CONSULTING SURGEON TO THE MIDDLESEX HOSPITAL.

The Theory of the Origin of Man from lower animals finds its surest foundation in Embryology, and some remarkable observations and discoveries relating to Tumours are concerned with this branch of Biology.

THE greatest discovery man ever made about himself was when Von Baer in 1827 discovered, with the aid of a microscope, the human ovum. When ripe the ovum is a spherical cell 0·25 μ in diameter. The riddle of animal reproduction remained unsolved until Koelliker recognised the importance of the minute flagellate cells called spermatozoa. These remarkable cells were discovered by Hamm, a pupil of Leeuwenhoek, in 1677. They resemble protozoa, and were called spermatozoa. For many years they were regarded as parasites of semen until Wagner and Koelliker in 1844 proved them to be histological elements of the testis. No one has witnessed the union of a spermatozoon with a human ovum; it is a matter of inference from observations made on the eggs of starfishes and amphibians. In such creatures ova and spermatozoa mingle in the water and come into vital collision, and the act of fertilisation can be seen under conditions permitting accurate observation. Biologists who have studied the process of fertilisation notice that when mature ova are brought into the vicinity of sperm, the spermatozoa, influenced by their presence, make energetic efforts to reach them.

THE AQUATIC ORIGIN OF MAN.

There is good evidence that man is derived from aquatic ancestors; the stages he passes through before becoming fit to be born indicate this: the fœtus in the womb lives as an aquatic parasite within its mother. When an ovum enters the uterus, the overgrown uterine decidua on which it rests secretes a fluid for its nourishment. This fluid is aptly named by Teacher, in a recent admirable research, uterine milk. The ovum can flourish in this medium about ten days. When the environment is favourable fertilisation is effected by a spermatozoon—a flagellate cell flourishing in a fluid menstruum. The ovum, in consequence of its union with the head of the spermatozoon, becomes an oösperm, or zygote, and is quickly invested with delicate membranes. Of these, the outer, known as the chorion, quickly becomes shaggy with protoplasmic bodies called chorionic villi. These villi erode the adjacent decidua and firmly embed the oösperm; they are, in due course, converted into a placenta—the respiratory organ of the fœtus. Fluid accumulates in the amnionic cavity and in due course the embryo disports itself actively as an aquatic creature in its own amnionic pool. In the early stage its skin is covered by a single layer of cells. Later this becomes double and the superficial layer is known as the epitrichium. About the eighth month of intra-uterine life the epitrichium is cast off mixed with grease from the skin-glands, and the delicate hairs known as lanugo. This soapy stuff is the vernix caseosa so conspicuous on the skin of the new-born child. The epitrichium persists on aquatic creatures such as frogs and salamanders and protects their skin from maceration. When the human fœtus, as an aquatic creature, disports itself in the amnionic hydrosphere the epitrichium and vernix caseosa protect it from maceration. Occasionally the epitrichium persists and the fœtus dies; in such circumstances when discharged from the uterus, it presents a weird appearance and is known as the Harlequin fœtus.

The human fœtus is an aquatic mammal, its blood being oxygenated by its mother's blood by means of the placenta. At birth it is expelled from the uterus; discards the placenta, and becomes a lung-breathing creature.

Few things made a deeper impression on my mind that when, as a child, I realised that the tadpoles, which emerged from the frog-spawn in the ditch bordering my playground, turned into frogs and jumped among the long grass in the paddock. It was my earliest lesson in embryology. When I became absorbed in anatomy and morphology the changes in the branchial bars, as the aquatic tadpole transforms into an air-breathing amphibian, became more interesting, especially on learning that in man their chief representatives are the delicate chain of ossicles—malleus, incus, and stapes—in the tympanic cavity. It requires little imagination to realise that "the first landmark in the ascent of man was when the frog first found voice and left the water," but true to its origin, *the frog must return to the water to spawn.*

Recently Leathes,[1] in an admirable summary, concludes that life consists in organic compounds continually reforming themselves and that the sea is the native environment originally of all forms of life. The importance of water is emphasised by the knowledge that the greater part of our bodies (two-thirds) is water.

CHORIONIC VILLI.

An ovum is propelled through the Fallopian tube in about three days. Normally the life of the ovum is spent in the cavity of the uterus, a suitable place for its reception and nourishment. When an ovum is attacked by a spermatozoon it burrows into the endometrium like a vigorous parasite. The initial effect of this invasion upon a woman is immediate arrest of menstruation; no one has suggested an explanation of this remarkable effect.

Thirty or forty days after fertilisation the oösperm has undergone some wonderful changes. It has increased enormously and become a cyst with a thin delicate transparent wall containing a visible embryo, and its outer wall is shaggy with delicate tufts known as chorionic villi. In the early stages the villi are devoid of blood-vessels; they consist of an axis of delicate connective tissue supporting cells rich in protoplasm. These cells are peculiar in character and easily recognised with the aid of a microscope by competent histologists. The chorionic villi are the chief cellular elements of the placenta. The cellular caps of the villi possess erosive powers which enable them to erode maternal tissues and blood-vessels. Chorionic villi have become the subject of intense study. A century ago it was discovered that the curious product of conception known as the grape-mole (Trauben mole) is due to changes in the chorionic villi. Examples are preserved in most pathological museums. Scientific knowledge percolates slowly; this disease remained a curiosity until Sänger and Pfeiffer, in 1889, independently described a malignant type of uterine tumour, peculiar in structure, which attacks parturient women. Subsequent investigations by many observers proved that such perversion is associated with the chorionic villi. It is now well known as an exaggeration of the eroding properties of the villi; they penetrate the walls of the uterus and may invade the peritoneal cavity. When they erode blood-vessels, fragments of the villi are deported by the blood stream to the heart, lungs, bones, viscera, and brain, giving origin to "secondary deposits" and sometimes kill the patient with astonishing speed.

Examples of the spontaneous disappearance of chorionic cancer have been reported. This betrays

[1] THE LANCET, 1926, ii., 365.

its alliance with the placenta which is a temporary organ.

The natural history of chorionic villi illustrates in a remarkable way the distinguishing features of the cancer cell; for example, its power of independent growth, erosiveness, and vitality which enable it to undergo dispersion and establish itself in parts of the body remote from its origin.

The natural history of the placenta is astonishing, but facts have been gradually accumulating which increase our astonishment.

The placenta dominates the life of the fœtus; the termination of its intra-uterine life coincides with that of the placenta, and at the end of 280 days, if the child be not expelled, the fœtal circulation stops, the babe dies, the placenta dies, and is slowly absorbed. It is significant that a ripe placenta never becomes malignant. The villi—the immature elements—are the source of chorionic cancer.

The pathologist's interest does not end here.

OVARIAN DERMOIDS.

Misdirected Embryologic Energy.

When the wonderful effects which follow the vital collision of a spermatozoon with an ovum were unravelled by embryologists, the spermatozoon seemed to be the essential factor in initiating developmental changes in the ovum. There are reasons for believing that this privilege is not peculiar to the tailed-cell. Ovarian dermoids are familiar to surgeons to-day, but 50 years ago they were regarded as curious tumours usually found after death. With the establishment of ovariotomy they were proved to be common tumours; all organs normal to a fœtus have been found in them, except the reproductive gonads. Skin with all the elements common to it, lanugo, hair, glands, and nails. Brain tissue, choroid plexus, and spinal cord. Eyes, teeth, cartilage, and bone. Trachea with mucous membrane and thyroid gland. Intestine and liver. The essential element is a skin-covered lump which often resembles a mammary gland with a nipple surrounded with an areola. Sometimes a rudely shaped head and a stunted limb. These ill-formed lumps, known as embryomas, represent an ovum which has developed without the stimulus of a spermatozoon.

Whilst pathologists were puzzled by such occurrences, Loeb induced the eggs of starfishes to segment by adding soda-water to the sea-water of an aquarium—shock fertilisation. Later, Batallion induced complete embryogenesis in the eggs of grass frogs by gently puncturing them with extremely thin metal, or glass stylets dipped in frog's blood. It is now a common experiment in biological laboratories in springtime to produce "fatherless frogs." These experiments have an important bearing on the origin of ovarian dermoids and support the opinion that they are due to the activity of ova.

The nature of ovarian dermoids has engrossed my attention for nearly 50 years. These tumours in some instances weigh nearly 50 lb. Gradually I realised that the mass of grumous stuff which often forms the greater part of the tumour is excrementitious. The embryoma, the essential part of the tumour, is skin-covered and the skin sheds epidermis, lanugo, hair, sebum, &c., hour by hour, day by day, month by month, and year by year, until the accumulated rubbish makes the tumour conspicuous.

I have often wondered at the frequent presence of skin, hair, and teeth in dermoids and pondered on the absence of intestine. How blind have I been!

A peculiarity of the cubical cells lining the gastro-intestinal canal is the large amount of colloid material which forms in them under pathological conditions. The biggest tumours which form in women are ovarian dermoids. Many years ago I urged that the membrane lining the honeycomb chambers of these huge cystic masses was mucous membrane. Gradually I became convinced that they are embryomas in which gastro-intestinal epithelium is dominant.

In ovarian dermoids skin prevails, and the accumulated rubbish—sebum, epidermis, lanugo, and teeth—is detritus from the skin.

In ovarian colloid cysts mucous membrane prevails. The accumulated stuff is pseudo-mucin furnished by the gastro-intestinal epithelium of the embryoma.

Between the extreme types there is every gradation of misdirected embryologic energy. These tumours arise in ova which develop independently of spermatozoa. When an embryoma is well organised the character of the dermoid is easily recognised and it is non-malignant. They endanger life by their bulk and septic infection to which they are liable, usually from the intestine.

Although I have spent much time in studying the minute structure of ovarian dermoids I have not detected in them any evidence of testicular tissue or chorionic villi. In 1902 Schangenhaufer discovered in a testicular dermoid tissue identical with chorionic villi. His observations have been confirmed by other histologists. In some instances the tissue closely resembles that of the grape-mole.

It is worth mention that among the peculiar tumours which occur in the ovaries of adult women, known as papillomatous cysts, there is a variety in which the microscopic structure is like that of chorionic cancer. This variety is malignant and is disseminated by the blood stream. The secondary tumours erode bone with facility. In one example under my observation the secondary growths occurred in the superior mediastinum, and bud-like processes eroded the manubrium of the sternum, and appeared as currant-like nodules under the skin.

Papillomatous cysts of the ovaries are, as a rule, bilateral and occur in women between the twenty-fifth and fiftieth years of life.

It is difficult to escape from this conclusion:

PREGNANCY IS THE EPITOME OF A PARASITE INFECTION.

The fœtus may be regarded as a tumour growing within its mother, the consequence of an infection by a parasite—the spermatozoon. It is a strange eventful history. Copulation is the method of infection by which flagellate protozoa—spermatozoa, introduced into the female—attack ripe ova in the uterine or the tubal passages, and convert one or more into oösperms (zygotes). The oösperm embeds itself vigorously in the ripe decidua. The first effects of the infection are a local reaction—the arrest of menstruation; and a constitutional response expressed by mammary activity—the secretion of milk; and usually pigmentation of the skin localised to certain definite situations. The uterus, in a marvellous manner, adjusts itself to the growth of the fœtal tumour, and at the end of 280 days the death of the placenta coincides with labour and the expulsion of the fœtus and its membranes. The fœtus discards the placenta and becomes an air-breathing mammal, leads an independent life, becomes in due course mature, and seeks opportunities for reproducing its kind.

Pathological changes sometimes arise in connexion with the accessory structures, especially the chorionic villi and the placenta, which jeopardise the successful development of the embryo and the life of its mother. We know in relation with ovarian and testicular dermoids that the more complete the development of the embryo the less harmful are the consequences to the mother; but when the development is perverted and the tissues nondescript, the gross products are often notoriously malignant. This holds good for uterine development.

PARTURITION.

Childbirth is a natural operation, and like a surgical operation has its risks and sequences. Of these, the two most important are sepsis and cancer, one is immediate and the other deferred.

In spite of the brilliant results which ensued on the conquest of sepsis and the treatment of wounds, child-bed fever persists. It is true that endemic

puerperal fever disappeared when Listerian principles were applied, but the sporadic form persists, and will persist, until parturition is conducted on the same strict methods as surgical operations. Take, for example, Cæsarean section. In 1860 this ancient operation had an enormous mortality. To-day it is safer than normal delivery at term, since surgeons adopted aseptic methods—boiling instruments and ligature materials; and especially wearing sterilised rubber gloves when conducting labour.

In order to reduce the risks of parturition to the level of those attending surgical operations, a parturient woman should be treated on the same lines as a prospective surgical patient. *She should not be ashamed to wash the gate-of-birth with the same diligence and care as she washes her face.* Such toilet is of the utmost value as a protection against post-partem sepsis.

Chronic ulcerating septic fissures in the walls of the birth-canal are the lurking places of pathogenic germs, and potential sources of uterine infection and cancer.

Science hath given a new commandment to doctors and midwives:

> Thou shalt wear sterilised rubber-gloves in taking a labour. The Law will not hold him guiltless that taketh a labour with bare hands and the lying-in woman develops child-bed fever.

We flounder in speculation concerning the causes of tumours and cancers, as much as our predecessors floundered in ignorance of the factors concerned in animal reproduction, until the microscope enabled us to recognise mammalian ova and spermatozoa, and work out their intimate relations.

> Verily the tale of Animal Reproduction is the most wonderful history in the world.

An Address
ON
PRACTICAL ANÆSTHETICS IN CHILDREN.

Delivered at the Infants Hospital, Westminster,

BY JOSEPH BIRT, M.R.C.S. ENG.,
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TWENTY-FOUR hours before operation the child's urine should be tested for albumin, sugar, and acetone. Whether the latter be present or not, teaspoonful doses of dextrose should be given, in addition to usual food, every four hours until within an hour of the operation. For old enough children sucking barley-sugar, or an equivalent, is an efficient and pleasant alternative. Status lymphaticus often cannot be diagnosed, but the anæsthetist should beware of children showing apathy and not resisting during induction, especially if they are fat and pale. Solid food should be discontinued four hours before the operation. No preliminary purgation is desirable. Atropine should be administered, either by the mouth or hypodermically—if by the mouth in two doses, one two hours and the other half an hour before operation, in the following scale of doses:—

For a child of 6 months to 1 year, in all ..	1/250 gr.
„ „ 1 year to 2 years, in all ..	1/150 gr.
„ „ 6 years and upwards, in all..	1/50 gr.

If by hypodermic injection half an hour before operation:—

From 6 months to 1 year ..	1/400 gr.
1–4 years	1/150 gr.
4–12 years	1/100 gr.

I think the hypodermic method is better as its action is more definite and is easier to time. In a few cases atropine administered orally has given rise to symptoms of poisoning which, so far as I know, have not been observed when a proper dose has been given hypodermically.

Apparatus.

Two inhaling masks should be used. I prefer Page's as they are fitted with two separate tubes, one for the gaseous anæsthetic and one for oxygen, each covered with 24 layers of single gauze. (Gauze is usually folded four times in the bought rolls, therefore six thicknesses of this will make 24 layers.) A pad of Gamgee tissue about 9 in. by 6 in., with a hole cut in the centre for the nose and mouth, should be wetted and placed over the face to protect the eyes, and this again covered with a similar-sized piece of thin indiarubber to act as an ether-proof protective. A tube of ethyl chloride, an ether bottle fitted with a dropping cork, and an ether bottle in a fixed stand with a Mennell's regulating tap should be provided, as well as a cylinder of oxygen with a fine adjustment screw, some indiarubber bellows, and two or three lengths of indiarubber tubing of a suitable size, in all about 3 yards long, a Mason's gag, and tongue forceps made much like towel-clips. The old-fashioned tongue-crushing clips should never be used. A small cylinder containing CO_2 may be found useful if respiratory amplitude should need increasing.

Ether Anæsthesia.

For an infant under 6 months ethyl chloride can be dispensed with and the gauze mask well soaked with ether and placed about 4 in. from the infant's face, gradually decreasing this distance till there is no struggling or crying. Then a wetted Gamgee shield, the indiarubber, and the mask are put in position, and the head turned well round to one side so that the tongue may fall into the cheek and saliva run out of the mouth instead of around the epiglottis and so into the larynx. I use gauze because it is absorbent and porous (as is also coarse flannel); lint is apt to balloon in expiration. The wet Gamgee pad fits the face better and does not give off fluff, which might be inhaled; the dampness also dilutes any ether that might escape on to the Gamgee, so that it is less likely to injure the eyes.

It is pleasanter for older children to start with a small dose of ethyl chloride to stop the crying and struggling that might be prolonged under ether alone. The nurse must hold the child securely (preferably above the elbows) while a gauze-covered mask is placed over the child's face after it has had about 5 or 6 c.cm. of ethyl chloride sprayed into it. Ether is dropped over the mask which the hand partly covers. When the child is asleep the gauze and indiarubber pad and the second gauze-covered mask (with plenty of ether on it) are firmly applied. This removal of the first mask takes away the stale and sickly gas left by the ethyl chloride and tends to prevent vomiting.

Readiness for operation is best shown in infants under one year by the absence of response when the skin of the abdomen is picked up with towel-clips, and in older children by freedom of the lower jaw when pulled away from the upper. The anæsthetic may then be continued by gradually dripping ether on the mask, keeping it quite wet all over and covering it with a thick extra pad of gauze or about two layers of an old soft bath towel. The ether should be dripped on the gauze of the mask beneath the extra covering, which confines the vapour and prevents evaporation and the extreme cold which it causes. The anæsthetic may very conveniently be continued from the completion of induction, for all ordinary purposes, by means of a gentle stream of oxygen passing through ether and conveyed to the patient by a tube from the Mennell's tap in the bottle to one of the conducting tubes on Page's frame-mask. The relative amount of ether and oxygen is regulated by the peculiar advantages of this tap. The oxygen (or, if preferred, air by means of bellows) passes from the other side of the tap. When the anæsthetic is being administered in this way a thoroughly fresh

supply for each patient should be insisted on, to ensure the minimum toxic effect from chemical changes. Absolutely fresh anæsthetic should be put into the bottle for each new patient. The residue can be used up for cleaning or for making ether soap. Ether and chloroform, especially in clear glass bottles, should be kept in the dark.

Hot air is not refreshing to breathe, and some surgeons believe that bronchial catarrh is more usual after using the anæsthetic warm.

Note must be taken of the quality of the pulse (rate is always much increased, often 156 or more), the breathing, the condition of the pupils and eyes generally, the colour of the lips and skin of the face, and always of the blood at the site of operation. The operation should not be commenced until the patient has passed the troublesome and even dangerous time when the reflex governing the vocal cords is sufficiently active to excite laryngeal spasm. This is especially dangerous with such a toxic agent as chloroform, which, when locked in the system by laryngeal spasm, will soon poison the vital organs of the body. Chloroform should never be used for children except in operations involving the use of an actual or electric cautery in the region of the mouth or face. It should then be delivered through a Junker and by air bellows, avoiding oxygen.

To proceed with the administration after the induction is properly completed, very little oxygen and ether will be necessary for good anæsthesia and very even and satisfactory states of the pulse and respiration. The pupils should be moderately dilated and the jaw kept loose by increasing, if necessary, the proportion of ether used.

After-treatment.

To free the patient from ether saturation at the conclusion of an operation CO_2 is sometimes used to induce voluminous and slow respiration. It is said that the patient has less taste of ether when he recovers consciousness. Some people think that the after-smell and unpleasantness of ether are neutralised by placing over the patient's face after operation a square of thick gauze soaked in household vinegar; presumably there is a chemical change which converts the unpleasant taste of ether to a pleasant one. During an operation and after it, until the patient coughs or vomits, the head should be kept on one side and low, without a pillow, to prevent the tongue falling on the epiglottis, and to allow all oral secretions to run out of the lower angle of the mouth. When the coughing or vomiting reflex is re-established, the patient will unconsciously look after himself and can be safely placed in any position desired.

Cranial Operations.

For operations involving the cranium, the neck (such as one for glands), or the region of the thyroid, it is necessary for the anæsthetist to be out of the way of the surgeon and his assistants, and this can be very satisfactorily managed, after induction is completed, in one of the following three ways.

1. An indiarubber nasal tube is passed to the back of the nasopharynx (preferably on one side only, leaving the other nostril free for expiration) and securely fastened to the face outside the nose by strapping. The main efferent tube from the ether container is attached to the nasal tube by a small junction of lead piping; lead is always preferable to glass for junctions as it does not break, is cheap, and can be bought at any plumber's shop. The main tube delivering the anæsthetic from the apparatus should be about 3 ft. long, so that the apparatus itself can stand away from the field of operation. It is important to see that the patient's end of the tube cannot slip off as it might be very difficult and inconvenient to replace in the middle of an operation. The anæsthetist must watch the bubbling in the sight-feed bottle and give proper consideration to the amount of ether being used.

2. A special airway can be passed over the tongue and secured in the mouth by strapping over it a pad of gauze partially occluding its outer end. This airway has a central tube for inspiration and the attachment of the efferent ether tube, while there is space enough around the centre tube for very free expiration and some measure of inspiration as well.

3. By the intratracheal method the anæsthetic is supplied in exactly the same way as in (2), but the tube finally delivering it is passed through the glottis. The passage of the tracheal catheter is not always easy, even in skilled hands, and as some injury may be caused by it or by the anæsthetic vapour impinging on the delicate mucous membrane, the intratracheal method should be reserved for special cases—e.g., when it is necessary to keep the lungs blown out to prevent pulmonary collapse, or in removal of tumours of the ethmoid or sphenoid regions, when the surgeon might find it necessary to divide and separate the soft or hard palates. For some purposes a combination of nitrous oxide and oxygen, with or without a small quantity of ether (derived by passing the gases either through or over the ether in the container) is very successful, especially in Rammstedt's operation. The apparatus is very heavy and therefore difficult to transport.

Boyle's apparatus is illustrated in most catalogues and is very efficient. It is desirable to have the gases in two or preferably three cylinders, rather than in one, in case of accidental leakage. There should be also an extra sight-measure bottle and an ether-containing bottle, as a failure of supply in any of these details might spell tragedy.

Each cylinder has a valve operated by a key and a fine adjustment wheel at the top to allow the quantity of gases required to be very delicately regulated. The sight-feed bottle contains two vertical tubes, the lower halves of each pierced with five small holes at regular intervals from top to bottom. To the afferent or external orifice of one tube is fixed an indiarubber tube from the oxygen and to the other a similar tube from the N_2O cylinder. Above the top holes is an air space in the bottle for mixing the gases, and up to this point cold water is poured in. The gas arriving from each cylinder bubbles through its respective tube into the water and indicates the quantity emitted in bubble units. As an ordinary rough rule it may be taken that one bubble of oxygen should be evident for four bubbles of N_2O. This mixture of gases passes into an ordinary three-way-valve gas-bag as used for dental administrations, but the bag has a central indiarubber tubing which is so arranged that any change made in the mixture of the gases is immediately conveyed close to the patient's mouth, while the residue inflates the bag.

The bag is filled and a suitable face-piece placed on the face as explained above. The child breathes with the valves in mid-position, which means inhalation of gases from the bag and expiration into the air. After a few breaths of this the ether tap is turned so that the gases pass over it, but not through it, and the valve is closed to rebreathing position. After a short time the child ceases to struggle and cry, and then the N_2O and oxygen alone are given and continued till the corneal reflexes are lost. When induction is complete the valves are returned to the midway point, as a cleaner and a better anæsthetic is thus administered than by rebreathing. In abdominal operations it is well to let more ether enter the bag when the peritoneum is about to be opened; should there be any sign of protrusion of the abdominal contents, it is well to have the wound covered up and to deliver the ether by bubbling the gases actually through it. This, however, is not usually necessary if the induction has not been hurried; in fact, it is a great help to the anæsthetist to have a quarter of an hour for induction so that it may be very gradual and cautious. One bubble of oxygen and four of N_2O in the sight-feed are usual, but must always be modified to suit each individual case.

When the operation is over the patient will soon be on his way to recovery of consciousness, and therefore in all operations (especially orthopædic procedures involving after-pain) he should have an adequate sedative, either morphia (hypodermically or orally) or aspirin and glucose by the rectum; the latter, however, does not act quickly enough after gas and oxygen. If the lips are anæmic they should be rubbed briskly

with a soft towel and a teaspoonful of brandy gently trickled between the lower lip and gum, or the finger may be wetted with brandy and placed in his mouth; no matter how young the patient is he is usually quickly refreshed. All the above anæsthetics can be continued after the requisite induction from a large gas and oxygen and ether apparatus, containing big cylinders and sufficiently capacious measuring and ether-containing bottles, such as is now installed at Great Ormond-street Hospital. Intratracheal work can also be done from it without separate motors and other complications. This apparatus has an extra cylinder containing CO_2 attached to the stand, with a special tap for running it in with the other gases if the CO_2 of the blood is considered subnormal, but this must be done with great care to avoid CO_2 poisoning. A gauge is fitted to this stand for measuring intratracheal pressures.

For intratracheal work a railroad catheter with the hole at the end should be used. The child's body and head lie quite flat and supine during induction. A special larnygoscope with the light fixed in its distal end is passed over the tongue to the epiglottis, tilted forward, and pushed to the aperture of the glottis; the catheter is then passed without force, and the ether vapour tube attached. The gauge register should be at 0 on inspiration and at 10 to 15 mm. during expiration. The catheter sizes are roughly as follows: No. 12 for a child of 12; No. 9 for a child of 6; No. 5 for babies. In extensive operations on the chest, when both pleuræ are opened, a pressure of about 50 mm. must be maintained to prevent pulmonary collapse.

Nitrous Oxide and Ethyl Chloride.

N_2O alone is not a satisfactory anæsthetic for children. Induction tends to be very quick, occasionally with much jactitation, and the return to consciousness is too rapid. The addition of a small proportion of oxygen, as explained before, meets this inconvenience quite adequately in all cases except when the mouth is the operation area. If the operation is to be a prolonged one ether vapour will be necessary, but where teeth are to be extracted or tonsils removed by the guillotine ethyl chloride should be used and is best administered by the closed-bag method, provided the anæsthetist has had a proper course of practical training in the necessary details of technique. Ethyl chloride should, however, not be administered either by the open or closed method until thorough practical experience has been obtained. Where the mouth or face is the site of operation, the ether vapour must be conveyed to the angle of the mouth by a bent lead tube attached to the indiarubber conducting tube, or a nasal catheter passed into one nostril and likewise attached to the conduction tube. At the completion of all operations it is well to put a little castor-oil into the eyes to prevent soreness of the conjunctiva. Even if the anæsthetic does not actually drop or creep into the eyes the atropine diminishes the flow of tears and thus leaves the conjunctiva very sensitive.

Accidents.

Accidents during anæsthetics are so rare and unexpected that it is important to have fixed in one's mind the best and first things to do under such circumstances.

Respiration may stop for a considerable time so long as the heart is actually pumping, but the limit allowable for real cardiac failure must not be more than seven minutes. It is best, therefore, to regard the situation as one of cardiac failure immediately untoward signs or symptoms appear. The child should be inverted or nearly turned upside down by tilting down the head of the operation table, the head should be hyperextended, the tongue drawn out, or the epiglottis pulled forward by a finger in the mouth, and oxygen driven in fairly forcibly through the nose or mouth. At the same time someone should perform external heart stimulation by a forcible and fairly quick intermittent pushing up under the left ribs of the contents of the abdomen. A nurse should inject 2 or 3 gr. of camphor in oil subcutaneously or intramuscularly. Artificial respiration can be conducted by another assistant, and the moment the heart responds it will be further stimulated by the presence of oxygen in the lungs and blood. If these measures fail the surgeon will open the abdomen and massage the heart immediately through the diaphragm. The first thing and most essential point is to arouse the dormant heart through the left abdominal wall.

Tests for Acetone.—Sodium-nitro-prusside test. To one inch of urine add two or three drops of caustic soda, then 1 per cent. solution sodium-nitro-prusside drop by drop = ruby red colour, add acetic acid; if acetone be present colour equals deep port wine.

Treatment for Acidosis.—Warmed 2 per cent. glucose sterile solutions under the skin or into a vein, or if by the rectum 15 per cent. solutions.

A CASE OF
VIRILISM DUE TO AN ADRENAL CORTICAL HYPERNEPHROMA:
RECOVERY AFTER REMOVAL OF GROWTH.

BY C. G. MURRAY, M.D. EDIN.,
AND
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With a Pathological Report by Dr. HUMPHREY GLEAVE *and Remarks by* Prof. ARTHUR HALL.

UP to 1925, when Gordon Holmes [1] published his case of virilism in which an adrenal growth was successfully removed by Sargent, in only two other cases had a similar operation been successful The earliest of these cases was J. K. Thornton's,[2] in which recovery was complete, but there was an intraperitoneal recurrence two years later. The other by Collett,[9] of Christiania, published in 1923, was in a child. We have been able to find records of only two more cases since 1925. In the case described by Fawcett, Hadfield, and Phillips [4] the patient was a woman of 70 in whom intestinal obstruction was caused by a very large tumour arising from congenital bilateral hyperplasia of the suprarenal cortex. There were "abnormalities in sexual character of the hormonic pseudohermaphroditic type." The operation was merely one of urgency, and the patient died on the next day. Feinblatt's [8] case was a woman aged 32. The history was somewhat similar to that in the case recorded in this paper. She began with pains in the right lumbar region which kept recurring for some weeks, then disappeared, to be followed about three months later by the changes in secondary characters typical of adrenal cortical growth. In this case, however, there was marked wasting and rapidly progressing weakness, and death occurred from exhaustion in about seven months from the first onset. The tumour was found to be a carcinoma of the cortex of the right adrenal gland with extension by way of the vena cava, but without metastasis. No operation was performed.

History of the Present Case.

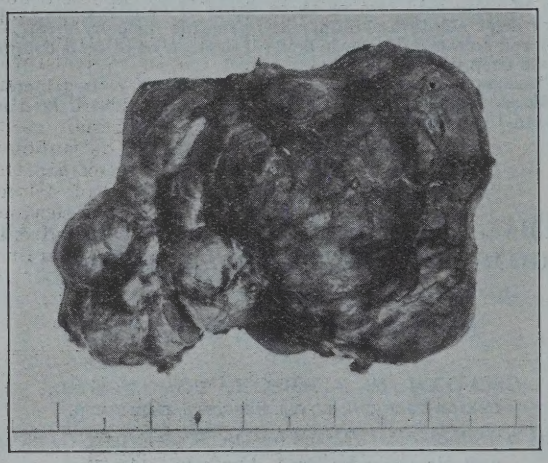
The following is the history of the case:

A single woman, aged 36, whose previous health had been quite good, began to have attacks of severe abdominal pain two or three years ago. They recurred at intervals of a few weeks, and were accompanied by anorexia. These have recently become less troublesome and gradually disappeared.

In May, 1926, she missed a period. There had never been any irregularity of the menses before. They had always occurred at intervals of exactly 28 days. During the summer of 1926 she also noticed that she was changing in several respects. She increased in weight. The hands and feet were getting larger, the hair of the scalp was beginning to fall off quite considerably, the skin of the face was becoming more coarse, and a strong hairy growth appeared on the face, chin, and lips. She also began to lose interest in things, and became irritable and depressed.

As the menses had not reappeared she consulted a gynæcologist in September, 1926. A pelvic examination was made, but nothing was found definitely abnormal. The uterus and ovaries were small. There was no marked enlargement of the clitoris. During the examination, however, a swelling was found deep in the right loin, which was suspected to be renal. In November, 1926, whilst staying in London, she consulted Dr. H. W. Barber about the hypertrichosis of the face, which was becoming more

FIG. 1.



Naked-eye photograph of larger tumour.

unsightly. He recognised the condition as one of early virilism, and suggested that the tumour which had been felt in the right side of the abdomen was a hypernephroma, causing the symptoms. He also called attention to the high blood pressure (200 systolic, 120 diastolic) present when he saw her.

She returned home, and her condition on Nov. 12th was as follows. The general appearance had become gross and unsightly, the features florid and bloated. The cheeks, lips, chin, and neck showed a growth of dark bristly hair. The hair of the head had fallen off from the crown and temples, giving the baldness characteristic of a middle-aged man, the breasts had shrunk, and there was a suggestion of the male type of figure, apart from the legs. The hands and feet were definitely enlarged. There were also definite temperamental changes noticeable to herself as well as to those around her. From being a placid and comfortable person she had become irritable and depressed. She complained that she had lost all interest in life, that all her previous emotions and affections had disappeared. Her clothes and her personal appearance no longer afforded her any pleasure. She also stated on inquiry that the opposite sex had ceased to have any attraction for her; in fact, that men's society had become somewhat distasteful to her. This, however, did not seem to be a prominent symptom, and she thought it was only part of her loss of general interest in everything. On physical examination, in addition to the characteristics of virilism mentioned above, a definite tumour was felt deeply in the right loin. It was firm, rounded, and slightly tender on pressure.

The pulse-rate, which had been 110, fell to 80 after a two weeks' rest in bed. The blood pressure was still high, usually about 200 systolic and 120 diastolic. The cardiac impulse was considerably displaced outwards and definitely heaving in character. When the patient was up there was some œdema of the right leg only. Nothing abnormal was found in any other system. The urine contained neither albumin nor sugar.

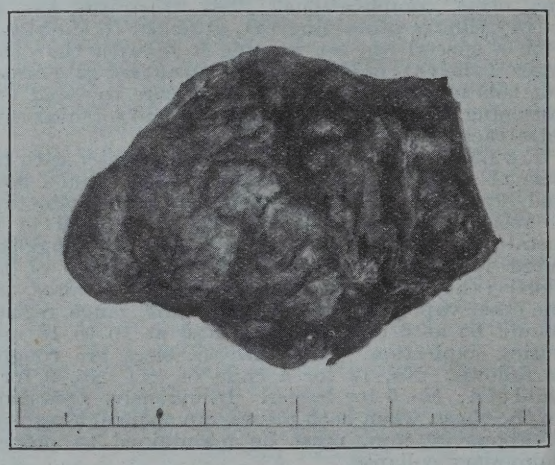
Operation.

After a consultation with Prof. Arthur Hall on Nov. 12th, operation was decided upon.

As a preliminary to this a cystoscopic examination was made by one of us (G. S. S.) to determine the condition of the right kidney. The bladder and ureters were normal. Blue was seen coming from the left ureter, but whether from the right or not remained uncertain.

On Nov. 16th, therefore, after anæsthetisation, a confirmatory cystoscopic examination was done, which showed that blue came also from the right kidney, but to a somewhat less extent than from the left. The major operation was therefore proceeded with (G. S. S.). An oblique incision was made in the right lumbar region and part of the right twelfth rib removed. A tumour was seen about the size of two fists. It was covered by large veins. The kidney was pushed down, but not adherent to it, and appeared to be normal. The tumour consisted of two parts closely in contact, but apparently not structurally joined. The more superficial part was first removed without much difficulty. The deeper situated portion, however, which was about the same size, was in contact with the arch of the diaphragm and closely adherent to surrounding parts. On completing

FIG. 2.



Naked-eye photograph of smaller tumour.

there was a considerable gush of venous blood from a vein torn off the inferior vena cava. It was also found that a small hole had been made in the right pleura. This was sutured.

Progress.

During the first few hours after operation her condition gave rise to some anxiety. The pulse-rate, which had been 104 before operation, rose to 132 and reached 148 during the next 24 hours. Temp., 101·5° F. Pituitrin was given repeatedly. The blood pressure on the day after operation had fallen to 120 systolic, rising to 130 after pituitrin. The condition remained somewhat critical during the first week. The temperature varied from 98·6° to 100°, the pulse-rate being 108 to 116. The systolic blood pressure was 130. The urine was rather above normal in amount and contained albumin. At the beginning of the second week there was a rise of temperature for three or four days. The pulse-rate again reached 148. After this the temperature fell to 98·6°–100° each day. The blood pressure remained steadily at 130 systolic.

About the end of the third week she had an attack of cystitis with frequency and pain. This subsided in a few

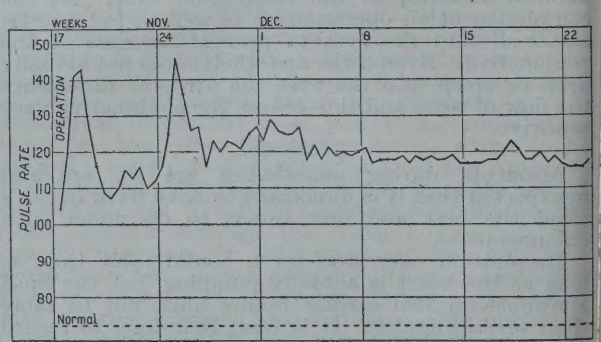


Chart showing pulse-rate after operation.

days, and after that improvement, though slow, was steady. The temperature became normal. Blood pressure, 125 systolic. The pulse, however, remained rather frequent—116–120. In the first week of January, 1927, she was able to return home. The pulse-rate had fallen to 100.

During the latter part of her stay in the nursing home definite changes occurred in the skin of the face. There was considerable exfoliation and scaling, and the hirsuties became less marked. The scalp hair began to grow again.

Pathological Report by Dr. HUMPHREY H. GLEAVE.

The specimen on removal was sent to the Pathological Department of Sheffield University, and the following report has been received from Dr. Humphrey Gleave, lecturer in pathology:—

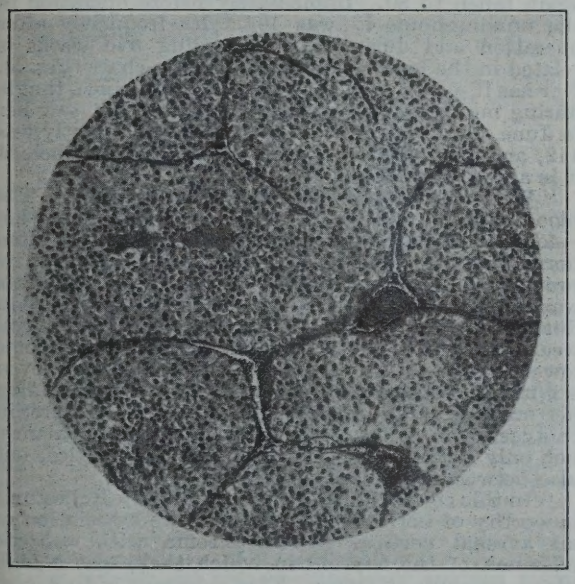
"The specimen received in Kaiserling solution on Nov. 18th, 1926, consists of two irregularly bossed masses of tissue, the larger (Fig. 1) measuring approximately 14·1 × 8·7 × 7·6 cm. and the smaller (Fig. 2) 12·1 × 7·3 × 6·9 cm. The former weighed in the wet state 464 g. and the latter 359 g. A portion of suprarenal gland was found adhering to one pole of the smaller mass. On section the two masses are found to consist of firm grey-white tumour tissue, divided irregularly by grey fibrous tissue strands, and showing numerous opaque yellowish patches of necrosis and areas of congestion.

"*Microscopical Examination.*—Large mass: the tumour consists of cells which are separated into columns and masses in a rather regular manner by capillary blood-vessels and sinusoids. The general arrangement resembles the zona fasciculata of the suprarenal, though the cell columns are frequently 10 or 20 cells in diameter. The blood-vessels separating the columns show a layer of endothelium supported by fine collagen fibres, with here and there a larger amount of fibrous tissue. A few collagen fibres also pass into the cell columns. The cells composing the tumour are fairly regular, polyhedral, measuring 13 to 24μ in diameter, with a large nucleus rich in chromatin occupying the greater part of the cell. The cytoplasm is finely granular, taking the pink eosin stain somewhat after the fashion of a liver cell. In numerous areas the cells contain clearer cytoplasm and vacuoles, but this appearance is probably due to degeneration, as it usually occurs at an area farthest away from a blood-vessel, and is sometimes accompanied by nuclear pyknosis. Multinucleated cells are scanty. Large areas of the growth show simple coagulative necrosis. There is very little hæmorrhage into the tissue. At the margin the tumour is bounded by a thick fibrous capsule, but in the midst of the capsule are seen a few groups of tumour cells.

"Smaller mass: Essentially the above description applies also to this tissue, but there are numerous areas in which the cells show more anaplasia. The trabecular arrangement is much less regular. There is considerable variation in the size and shape of the cells; in some areas they are oval. Multinucleated cells and hyperchromatic nuclei are fairly numerous. No chromaffin tissue could be demonstrated in either piece. Frozen sections of the formalin-fixed material were examined in polarised light. A small amount of lipoid is present in the tumour tissue, but practically none in comparison with the normal adrenal cortex.

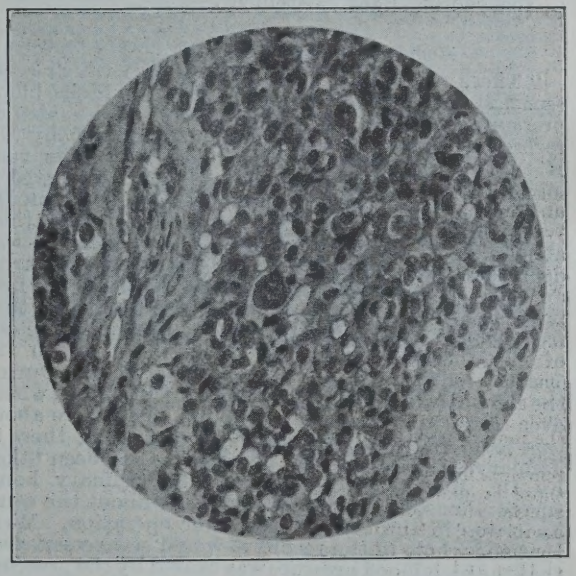
"The tumour is evidently an 'adrenal hypernephroma.'[5] Rolleston[6] suggests 'adrenal cortical hypernephroma' as the best designation for this well-recognised group of tumours. They arise from the cells of the adrenal cortex and are clearly distinguished from the paragangliomas and neuroblastomas arising from the medulla. Such tumours may be of all grades of malignancy. In Gordon Holmes's[1] case the symptoms dated from at least five years before the operation, and the patient was alive and well nine years later. The section showed a benign tumour (Prof. E. Glynn). In Glynn and Hewetson's[7] case there was amenorrhœa of 16 years' duration and hypertrichosis of four or five years' duration; the adrenal growth, weighing 12 lb., was encapsuled, and there were no secondary deposits. On the other hand, in Feinblatt's[8] case the total duration from the onset of pain followed by hypertrichosis to death was only eight months, and pieces of growth were present in the vena cava and right ventricle. There is also the possibility of a benign tumour becoming malignant, as seems probable in French's[6] case. The tumours which more closely resemble adrenal cortex are the more benign. Through the kindness of Prof. Glynn I have had an opportunity of comparing the sections from this case with those of five other cases of adrenal hypernephroma which he allowed me to examine. The sections show that the six tumours are all of the same variety. In histological detail the present case, although apparently more active, corresponds most closely with that in Glynn and Hewetson's[7] case. Though much of it has a benign aspect there are areas of cellular anaplasia with mitoses and multinucleated cells. The majority of adrenal hypernephromas show these features even when the tumours are still localised. According to Glynn,[5] in these tumours, on the whole, growth takes place more slowly than in most malignant tumours. The prognosis is therefore rather better than in most malignant tumours, as even those which appear histologically malignant may remain localised for a considerable time."

FIG. 3.



Low-power magnification of the large tumour mass (Fig. 1). Fairly regular cell columns are separated from each other by vascular sinuses and fibrous tissue.

FIG. 4.



High-power magnification shows an area of cellular anaplasia with much irregularity of cells and nuclei.

Further History of the Case.

Since leaving the nursing-home the patient has made steady though necessarily slow progress. Just before operation in November, 1926, she weighed 10 st. 5 lb., whilst in May, 1927, she only weighed 8 st. 3 lb. She says that during the months she was ill her appetite increased greatly, so that she was always longing for the next meal and never seemed satisfied. This has

entirely disappeared since the operation, and her appetite is now normal. She has begun to take an interest in her house and clothes, and although still somewhat lacking in energy feels much more like her former self. She drives her car alone. As regards her personal appearance the change is striking. The hirsuties has disappeared, the features have returned to what they were before the illness. The hair of the head has begun to grow again. The hands have returned to their previous dimensions, and there is a general return to the feminine softness which was quite lost before operation. It is unfortunate that no photograph of her condition at the height of the illness was obtained.

The menses reappeared in January and have recurred with perfect regularity ever since. An interesting point in connexion with this is that their recurrence was at exactly the time at which they would have occurred had she never missed a period. As was stated in the history of the case, the menses had always been absolutely punctual, the interval being exactly 28 days (four weeks). The last period, before they ceased, began on May 22nd, 1926, and their first reappearance was on Jan. 31st, 1927. A simple calculation will show that this date is exactly 36 weeks to the day from May 22nd. The pulse-rate remains slightly above normal, and the blood pressure, though, as a rule, only about 130, is still very easily raised to 190–200 on slight excitement.

Remarks by Prof. ARTHUR HALL.

"There are two features in this case which seem especially to call for comment—the high blood pressure and the frequent pulse. As the history records, the blood pressure, when first taken by Dr. H. W. Barber, early in November, 1926, was very high. For how long this high pressure had existed is unknown. It remained constantly about 200 mm. Hg systolic and 120 diastolic up to the time of operation, about a fortnight later. At that time also there was definite displacement of the cardiac impulse outwards, and this was of a heaving character. During the first few days after operation the patient was so ill that frequent investigations of the blood pressure were out of the question, but it fell on the first day to 120 systolic, rising to 130 after pituitrin was given. During the remainder of her stay in the nursing-home, whenever taken it was constantly found somewhere about this level—i.e., 130 systolic. Since leaving there in January, 1927, whenever the pressure has been taken by Dr. Murray amid the patient's ordinary home surroundings, it has been found to be about the same as it was in the early weeks after operation. Were that the whole of the record it would seem very clear that the high blood pressure was caused by the presence of the tumour alone. This view must, however, be somewhat modified. She was brought to see me in May, 1927, and I found that when, early in our interview, the pressure was taken, it was about 190 systolic. I waited until the end of the consultation so that any possible initial excitement might have settled down, and found that it was then much lower—about 140 systolic. It is evident, therefore, that although not constantly high it is easily raised, possibly by excitement.

"I saw her again on June 15th and proceeded in the same way. This time it was 170 systolic when she arrived, whilst at the close of the interview it was 200. She had driven her car a distance of three miles, but did not appear at all nervous or excited. The cardiac impulse was in the fifth left space in the nipple line and distinctly heaving.

"It is thus evident that whatever part the cortical hypernephroma may have played in bringing about the rise of blood pressure, this has not as yet returned to a steady normal level with the removal of the growth. Nor is it easy to see why a tumour apparently limited to cortical substance should have any effect in raising the blood pressure—a function of the medullary portion. So far as records of other similar cases go there is but scanty information as to blood pressure to help us. Some of these cases were published before the days of blood-pressure records. Amongst the more recent cases I cannot find any reference to blood pressure in Gordon Holmes's [1] case, either before or after operation; whilst in Feinblatt's [8] case, so far from being raised, it was below normal (110 systolic, 75 diastolic). In cases of adrenal medullary tumours a high blood pressure has been recorded, but by no means constantly. Many of the older records do not refer to the blood pressure at all, so that the number upon which to base an opinion is rather small. Rolleston [6] refers to one case in which a high blood pressure was definitely present, and mentions four other cases in which it was at least suggestive, but lacking in complete proof. On the other hand, Frew [2] records two cases in which it was not raised.

"Rolleston [6] sums up the situation as follows: 'The interesting question whether or not tumours of the medulla often provide an excess of normal or altered adrenin cannot yet be regarded as settled . . . there is not sufficient evidence to justify the tempting conclusion that hyperadrenalism analogous to hyperthyroidism exists.' On the other hand, in the present case, there has been also a change in the pulse frequency. She is quite sure that prior to this illness her pulse was always about 80 per minute. In November, 1926, however, before taking to bed, it was 110. After two weeks in bed, before operation, it had again fallen to 80. Immediately before operation in the nursing-home it was 104. Its frequency after operation and during the succeeding five weeks is related in the history and shown in the chart (Fig. 5). Nor has it ever returned to a normal rate since, that is during more than six months. When I last saw her in June, 1927, the pulse-rate when sitting quietly was 112, and she tells me that when she takes it herself it is always 100 to 106.

"We have, therefore, these two sets of facts: The blood pressure was very high shortly before operation—fell to normal immediately after operation—is often normal now, six months later, but easily goes up to its previous height from trivial causes. The pulse-rate was normal before her illness—was raised to 100–110 during her illness—was still further raised for several weeks after the operation, and has not yet become lower than it was in the weeks before operation, even six months afterwards, although she is now leading her ordinary life. It seems as though there were, in this case, some gross disturbance of endocrine balance, not only between the adrenals and the ovaries, but also between the adrenals and the thyroid.

"In this connexion a case referred to by Rolleston [6] is worthy of notice. He mentions the association of an adrenal cortical hypernephroma with a toxic adenoma of the thyroid in which there was a high blood pressure at times. This reference is to a case recorded by Keyser and Walters [3]:—

> A woman, aged 37, the mother of ten children, has not menstruated since the last pregnancy ten years before. For two years she had noticed an enlargement of the thyroid gland, together with some nervousness, occasional tremor, and some palpitation. There was also increased sweating and dyspnœa on slight exertion. Her appetite increased and she had put on 30 lb. in weight, but in spite of this became weaker. For 18 months some changes had been noticed in the skin, and considerable hypertrichosis of the face was present, so that she had to shave. The trunk and limbs were also affected. A diffuse alopecia of the scalp was present. Some albumin and sugar were found in the urine. For a year there had been aching in the back. When seen in February, 1923, there was an adenoma in the thyroid and a large rounded swelling on the left side of the abdomen under the costal margin. This was removed on Feb. 28th and found to be a 'malignant suprarenal hypernephroma.'

"The patient only survived operation four days. In this case before operation the blood pressure varied from 124 to 180 systolic, and from 90 to 110 diastolic, whilst the pulse-rate varied from 100 to 130. After operation the pulse-rate increased in frequency and the systolic blood pressure is described as being 'low and indeterminate' up to the end.

"Although the present case, unlike that of Keyser and Walters, has no obvious change in the thyroid

gland, yet as regards blood pressure and pulse-rate there is a certain resemblance between the two cases. Possibly the persistence of the pulse frequency at the level about the same as before operation, and the tendency to a rise of blood pressure on slight disturbance, may mean that there are some further remains of hypernephromatous tissue still present, insufficient to cause a constant high blood pressure, but enough to keep up the thyroid over-activity."

In recording this case the authors' thanks are due to Dr. H. W. Barber for first diagnosing the condition, to Dr. H. H. Gleave for the pathological report and microphotographs, and to Prof. Arthur Hall, for much assistance and advice throughout.

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A CASE OF
SUPRARENAL HYPERNEPHROMA.

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AND
W. A. LISTER, M.B. CAMB., M.R.C.P. LOND.,
ASSISTANT PHYSICIAN TO THE HOSPITAL.

SINCE Bulloch and Sequeira (1905) published their classical paper this remarkable condition has become widely recognised. It is hoped, however, that the following case will prove of sufficient interest to warrant its being placed on record.

History.

A girl, aged 13½, was admitted to the South Devon and East Cornwall Hospital on June 24th, 1927. Her mother stated that, though she had always been a plump girl, obesity had been increasing rapidly during the last six months. In February, 1927, she had fallen off a bench at school and hurt her back. Since that time she had complained of pain in the back and slowly progressing weakness of the legs, so that in June she could only get about with great difficulty. During the same period the external genitals had rapidly increased in size, but menstruation had not begun. In other respects she was a healthy child and had made satisfactory progress at school. At no time had she suffered any severe illness.

The patient was the second of four children born to the mother's second husband, who died of tuberculosis of the lungs. The other three children were alive and well. The mother's first husband was killed in an accident and her two sons by him died at about 24 years of age, one of fever in Canada and the other of (?) epilepsy.

Clinical Examination.

On examination the patient presented a remarkable appearance. She was 4 ft. 6 in. in height and weighed 6 st. 12 lb. Her face was that of a stout little old woman with very high colour and a scanty growth of fine black hair on the upper lip. The thyroid gland was not palpable and the hands and fingers were fine and tapering. Over the neck, trunk, and buttocks the subcutaneous fat was greatly increased, but no supraclavicular pads were present. The skin, which was not abnormally dry, showed a slight general pigmentation and numerous purple striæ atrophicæ over the hips, buttocks, and lower abdomen. Over the shoulders and down the back was a moderately thick growth of black hair up to one inch in length and most abundant in the interscapular region. The pubic hair was much in excess of the normal for the patient's age and presented a horizontal upper margin. The labiæ also were abnormally developed, but the clitoris was not hypertrophied to a disproportionate degree.

As compared with the trunk the limbs appeared rather thin, though in fact there was a normal amount of subcutaneous fat present. Both quadriceps extensor muscles were slightly wasted and there was weakness of extension of the knees. Both knee-jerks were absent. Movements of the ankles were strong, the ankle-jerks were present, and the plantar responses flexor in type. The abdominal reflexes were present, but rather sluggish in the lower segments. No loss of sensation of any type could be detected, nor was any other abnormality found in the central nervous system. The heart and lungs were free from signs of disease. In the left hypochondrium an irregularly rounded tumour the size of a fœtal head could be palpated, passing back into the loin and upward beneath the costal margin, but not in close apposition to it. The mass did not seem to be firmly fixed, and it moved slightly on respiration. On percussion a resonant note was obtained over the tumour. The liver and spleen were not palpable and nothing abnormal was felt per rectum.

FIG. 1.

Back and front view of patient, showing alteration in figure and facies.

The temperature was normal and the pulse-rate varied between 80 and 100. On admission a trace of sugar was said to have been found in the urine, but this was never detected on subsequent occasions, nor was any other abnormality found in it. On June 24th a blood-count gave the following results: red cells, 5,100,000; hæmoglobin, 88 per cent.; total leucocytes, 14,800, of which 67 per cent. were neutrophils and 33 per cent. lymphocytes.

A diagnosis of tumour of the left suprarenal cortex was made, but it was feared that the absence of knee-jerks and weakness of the quadriceps extensor muscles was due to metastases involving the lumbar plexus. However, a radiogram showed no signs of disease of the spine and a film of the chest showed no metastases in this position. The question of operation for removal of the tumour therefore arose, but a perusal of the literature was not encouraging. Records of only four cases of successful removal of such tumours could be found—namely, those of Knowsley Thornton, Collett, and Bovin (quoted by Gordon Holmes, 1924) and except for Collett's case these were in much older patients. In THE LANCET of July 9th there was a note that another successful case had been reported at a meeting of the Pathological Society of Great Britain on July 1st by Gleave and Wilson, the patient being a woman of 36 years.*

As the prognosis without operation was hopeless it was decided that the risk was justifiable, and on

* This is the case described by Dr. Murray and Mr. Simpson in our present issue.—ED. L.

July 12th the tumour was removed through a left lumbar incision under general anæsthesia. It was found to be covered by a thin fibrous capsule and was easily separated from the surrounding structures except at one point on its postero-internal aspect, where the capsule was deficient and the tumour somewhat adherent. On inspecting the cavity from which the tumour had been removed its relationship to the left kidney, spleen, pancreas, and colon were clearly demonstrated. Few vessels required ligature and none of these were of any size. The patient stood the operation well and her condition remained good for ten hours. Her pulse then suddenly became very rapid and weak and she died 36 hours after the operation.

At *autopsy* there was found to be moderate bruising and slight extravasation of blood into the left half of the pancreas, lower half of the spleen, upper pole of the left kidney, and the cellular tissue around the solar plexus. No sign of the left

FIG. 2.

Section of hypernephroma. (× 30.)

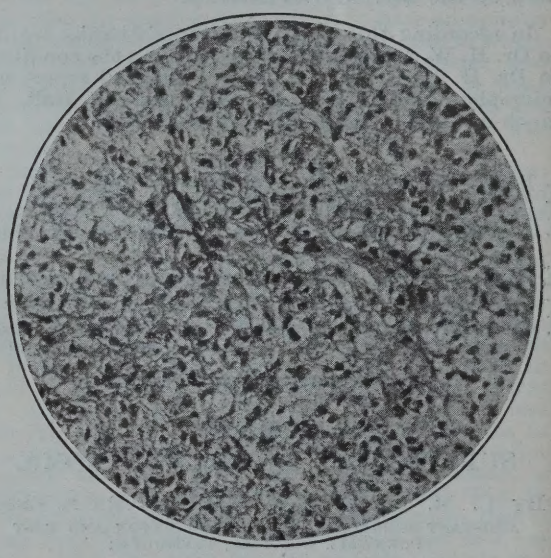
adrenal body or of any tumour substance in the neighbourhood was found. The right adrenal body was only found with some difficulty. It measured 2·5 × 1·5 × 0·2 cm. On section the cortex was represented by a row of pinhead yellow nodules and the medulla by a small amount of grey material. The uterus was infantile and measured 4·3 cm. in length and the ovaries were smooth, firm, yellow bodies measuring 1·25 × 0·5 cm. with no superficial follicles or signs of activity. In the apex of the right lower lobe of the lung beneath the visceral pleura was a metastasis from the tumour the size of a pea. No other metastasis was found. The kidneys, liver, and myocardium showed slight parenchymatous degeneration and the lungs were œdematous and congested at the bases. It was not possible to examine the central nervous system and no cause for the absence of knee-jerks was found. The lumbar plexus was normal on both sides.

The tumour measured $8\frac{1}{2} \times 5 \times 2\frac{3}{4}$ in., weighed 3 lb. 13 oz., and was roughly kidney-shaped. Its colour was grey, and except at one point where the covering was deficient it was surrounded by a thin capsule in which ran numerous small blood-vessels. The surface was lobular. On section the tumour was seen to be composed of a number of rounded masses equalling a large walnut in size and mottled grey and yellow in colour. It was freely supplied with blood from vessels running in loose fibrous septa arising from the capsule and separating the individual tumour masses from one another. At no point was any sign of degeneration to be seen.

Microscopically the tumour was seen to be composed of polygonal cells varying in size, but the majority very large. They presented a well-defined cell outline and very vacuolated, foamy, or spongy protoplasm, and round or oval deeply-stained nuclei. These cells were divided into groups of varying size by thin fibrous septa containing very thin-walled blood-vessels. There were also a few larger vessels with muscular walls in the sections. Multinucleated giant cells were few.

The secondary deposit in the lung presented a well-defined border. The tumour cells resembled those of the primary growth, but were not so vacuolated, and numerous multinucleated giant cells were present. The cells were divided into groups of uniform size by very delicate fibrous septa containing thin-walled blood-vessels distended with blood. The right suprarenal body showed all the normal types of

FIG. 3.



Section of hypernephroma. (× 200.)

cell found in this organ, but the columnar arrangement in the cortex was indistinct and irregular. The ovary showed a stroma rich in spindle-cells containing very numerous Graafian follicles each of which consisted of an ovum enclosed in a theca of a single row of cells. The section also showed a larger follicle with a multicellular theca and a very large cystic follicle with discus proligerus.

Summaries of the literature relating to this condition have been made by Bulloch and Sequeira, Glynn, and

FIG. 4.

Cortex of right adrenal gland. (× 30.)

Gordon Holmes, and there is no need to recapitulat them here. It may, however, be pointed out that i cases of this type the opposite suprarenal not uncom monly appears to be poorly developed. This was s in the present case, and in that published by Hijman (1915), in which the patient died shortly afte operation, the opposite suprarenal was describe

as very pale, pale yellow, and narrow (zeer bleek, bleek-geel, smal). Again, Glynn and Fordyce exhibited a similar case in a boy aged 2 in which the opposite suprarenal was atrophied at the meeting of the Pathological Society already referred to.

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A SMALL OUTBREAK OF ERYTHEMA NODOSUM.

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Erythema nodosum is once more attracting attention, and there prevails again a tendency to isolate it as a disease sui generis and to relabel it, as did Lendon, "nodal fever." [1] Accounts of definite outbreaks suggesting the specific infectious character of the condition are not abundant, and I therefore record this small epidemic.

The five cases here related occurred almost simultaneously; all were drawn from the same London district, and all were detained in St. Marylebone Hospital at almost the same time. In the first two cases there is evidence of direct contact. The outbreak occurred during the prevalence of an epidemic of so-called influenza in the early months of this year. In every case except one the condition was, in the first instance, diagnosed as acute tonsillitis if a gross throat lesion were present, or as influenza if the throat appeared normal.

CASE 1.—Male, aged 50, of the resident medical staff, St. Marylebone Hospital. Susceptible to attacks of tonsillitis and influenza whenever these were prevalent; otherwise healthy. No history of rheumatism or tuberculosis. Jan. 9th, 1927: Febrile attack; temperature 100° F.; generalised pains; throat normal; heart normal; diagnosed as influenza; confined to bed three days. 14th: Pains in legs, especially in ankles; developed typical medium-sized lesions of erythema nodosum confined to the legs. Condition subsided in a week. Some general debility followed.

CASE 2.—A probationer nurse at St. Marylebone Hospital, aged 24. Subject to attacks of acute tonsillitis. No history of rheumatism or tuberculosis. Jan. 21st: Severe attack of acute tonsillitis with generalised pains in back and limbs; temperature 100° F.; tonsils enlarged and septic with injection and follicular spots; glands of neck enlarged and tender. 29th: Developed a typical severe attack of erythema nodosum; nodules of medium size appeared at intervals, were confined to legs, and were associated with severe pain in the lower extremities, particularly in knees and ankles. By Feb. 11th all lesions had cleared up. Considerable debility followed. Tonsillectomy was performed later.

CASE 3.—A woman, aged 48. Frequent inmate of the hospital, suffering from a mild degree of hyperthyroidism. No history of rheumatism or tuberculosis. Jan. 18th: "Influenza," malaise, and general aching, particularly of back and limbs; mild sore-throat. 25th: Pains in legs; swellings appeared. Feb. 2nd: Admitted to hospital; had typical lesions of erythema nodosum confined to front of legs; nodules of varying sizes and in different stages; some yellow nodules in process of subsidence; others fresh, red, and tender; still complained of pain in joints and fascial planes; temperature normal; heart normal except for slight tachycardia; pulse-rate 90; throat normal. 22nd: Clear.

CASE 4.—Boy, aged 6. History rather indefinite, but said to have been ill about ten days. Jan. 31st: Sent to hospital as erythema nodosum; typical mild attack; few nodules in process of subsidence; pain slight; temperature normal; throat normal. Feb. 8th: Clear.

CASE 5.—Woman, aged 29. No history of rheumatism or tuberculosis. Jan. 26th: "Influenza," headache, generalised pains, and later sore-throat. Feb. 6th: Developed pain and swellings on legs. 8th: Pain in chest on breathing. 9th: Sent to hospital as tonsillitis and ? pleurisy; temperature 103° F.; no definite physical signs in chest but picture suggestive of pleural pain, thought to be possibly diaphragmatic; also pain in neck. On the legs were typical lesions of erythema nodosum; a few large nodules and multiple small ones. Fresh lesions appeared during the next five days. 16th: Temperature normal. 28th: Erythema nodosum cleared up; simultaneously pain in neck and chest disappeared.

I would add that I have the authority of my colleagues that there were two other cases of erythema nodosum in the hospital at this time under their care. Unfortunately, I have been unable to trace the case-records of these.

For contrast I describe below two sporadic cases of nodose eruptions suggestive of erythema nodosum but which I prefer to classify as erythema multiforme, and from consideration of these, and by analogy with two pulmonary conditions, to offer a suggestion which explains the apparent relationship between these two dermatological conditions.

CASE 6.—Probationer nurse, aged 25. Anæmic; never robust; in early part of 1927 had tonsillitis, and later perforated appendix; no history of rheumatism or tuberculosis. May 19th, 1927: Following general malaise, developed multiple, red, tender, subcutaneous nodules on anterior surfaces of both legs; diagnosed as erythema nodosum. June 2nd: Bullous lesions appeared. 23rd: Fresh crop of lesions, some pustular, still confined to legs. August 7th: Practically clear.

CASE 7.—Woman, aged 47. Said to be subject to rheumatism, although the type of pain described was not clearly of the variety met with in true rheumatism. January, 1927: Delivered of an infant which she fed on the breast. April: Developed right mastitis. May 1st: General malaise and discharge from the right nipple; some days later an abscess in the right breast ruptured spontaneously through the skin. 9th: Pains in joints and tender swellings on arms. 16th: Admitted to hospital, with temperature 103° F., for large abscess of right breast; had an eruption, mainly along subcutaneous borders of ulnæ, of moderate-sized, tender, red nodules, apparently a typical eruption of erythema nodosum. 17th: Breast abscess incised. 19th: Developed a crop of small papules on the hands and forearms. Then the advisability of rediagnosing the condition as erythema multiforme arose. 23rd: Papules disappeared, but a nodule appeared on one leg. June 4th: Recurrent pyrexia and pains in legs with fresh crop of nodules on shins, again very like erythema nodosum. Lesions on arms subsided by passing through typical discoloration stage. 25th: All lesions cleared up and breast practically healed.

In Case 6 it is quite clear that the original nodular lesions were merely a phase and a variety of the eruption of erythema multiforme. The close resemblance to erythema nodosum was soon dispelled with the appearance of the subsequent lesions. In the latter case, however, the resemblance was even closer. Except for the four days when the papular eruption was manifest the case was absolutely indistinguishable from erythema nodosum. Even now I am not convinced that this was not the true diagnosis. The following analogy, however, will perhaps illustrate what I conceive to be the differences between erythema nodosum and multiforme, and why I consider that Case 6 can be separated at once from erythema nodosum, whereas Case 7, whilst very suggestive of erythema nodosum, can be regarded as a variety of erythema multiforme. For the purposes of my analogy I use the characteristics of the two conditions, lobar pneumonia and broncho-pneumonia.

Typical lobar pneumonia is a definite clinical entity, an acute specific infectious disease of known ætiology and abrupt onset. Sporadic cases and epidemics are known. It produces characteristic physical signs (of consolidation limited to one area of the lung). Its tendency is to clear up entirely and recurrences are not common. Broncho-pneumonia (secondary) is, however, an entirely different condition, of mixed ætiology and varied manifestations. Its onset is often insidious but may be abrupt. Its physical signs are many and varied but may be typical, and in a straightforward case confusion with lobar pneumonia is unlikely. It tends to be pro-

[1] G. F. Walker: The Place of Erythema Nodosum in Medicine, British Journal of Dermatology and Syphilis, June, 1927, p. 241 (with bibliography).

tracted and recurrences are common. Nevertheless, atypical cases are frequent, and one type, owing to its close similarity to lobar pneumonia, is labelled the pseudo-lobar form. In this a confluent patch of broncho-pneumonia may be the only clinical manifestation and the differentiation from lobar pneumonia extremely difficult.

In the analogy I wish to draw erythema nodosum can be aptly compared with lobar pneumonia. Practically all that has been said of the one can be applied to the other. Similarly, erythema multiforme can be considered analogous to broncho-pneumonia. In its typical manifestation erythema multiforme is quite distinct from the condition which has been labelled nodal fever, but the unusual nodose type of erythema multiforme may bear a striking resemblance to erythema nodosum. Case 6 illustrates this point very well, but the similarity was short-lived. Having, then, admitted the possibility, it is easy to accept Case 7 as a similar example in which the transient papular eruption supplied the clue to the problem.

I wish to acknowledge my indebtedness to Mr. B. Hood, medical superintendent of St. Marylebone Hospital, for his permission to publish these cases.

A CASE OF HYPERTROPHIC LEUCOPLAKIA OF THE TONGUE

TREATED BY SOUTTAR'S CAUTERY.

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THE possible developments of intractable leucoplakia of the tongue, to which the classical work and publications of Butlin [1] first drew general attention, are now fully realised and justly feared. Many of the early cases yield to antisyphilitic treatment and elimination of oral sepsis and irritation—as from excessive smoking—but it will be admitted that occasionally these measures seem powerless to cure, or even arrest, the progress of the disease. The textbooks are very pessimistic. Prof. R. L. Sutton states [2] that ". . . . it is exceedingly rebellious to treatment, and many cases are practically incurable. The possibility of cancerous involvement should always to borne in mind." R. W. MacKenna [3] likewise describes it as ". . . . very rebellious to treatment, and prone to become cancerous"; and David Lees [4] is equally emphatic, remarking that "it is peculiarly resistant to treatment and is often the precursor of malignant disease." Many similar quotations might be given, but there are probably no disputants of Butlin's original thesis, and we are free to inquire what remedies are available when anti-syphilitic drugs and dental ministrations have failed us. Sutton [2] gives a long list. It includes mild astringent and alkaline mouth washes, pencilling with silver nitrate, methylene blue, resorcin (Unna), 20 per cent. solution of chromic acid, pure acid nitrate of mercury (Sherwell), and the actual cautery (Stellwagon). Carbon dioxide snow, in spite of the risk of reactive swelling, has its advocates, and during the past ten years X rays and radium have been employed with good results and occasional cure in mild cases.

Most authorities would agree with MacLeod,[5] who maintains that ". . . . caustic remedies or the actual cautery should be used with the utmost caution for fear of producing malignant changes, and on the whole are better avoided." With this view I am in entire accord, for the reason that none of them go far enough. They may fairly be described as *half measures* in that they do not aim at removing the whole of the actively growing and irritated area. None of us would contemplate their employment for lingual cancer; why, then, have they been advocated and used for a condition which may, and not infrequently does, proceed to that state? It seems strange that with so serious a prognosis surgeons do not come forward more frequently with the suggestion of dissection or plastic ablation of the diseased mucous membrane in resistant cases. The fact is that such cases are allowed to drift, and the ultimate fate of some of them is a sad commentary on modern therapeutics.

It was the very chronic and intractable case I am about to report that first turned my attention to the possibility of radical destruction or extirpation of such areas, but it was not until Mr. H. S. Souttar had perfected his steam-heated cautery [6] that I believed myself in a position adequately to effect this. I might, it is true, have availed myself of diathermy, of which I had had some previous experience in cases of rodent ulcer and lupus vulgaris; but I had discovered for myself that its action as regards penetration, which probably depends on variations of electrical conductivity, is most unreliable and difficult to assess and control, and I considered that for a relatively superficial condition it was not an ideal implement. A deep burn in a muscular and highly mobile and sensitive organ like the tongue might lead to deformity or a most irksome fixation, and then again there was the possible if remote risk of igniting the anæsthetic gases by accidental sparking during the operation. Mr. Souttar's simple device, which has not yet received the recognition it undoubtedly deserves, is free from all these objections and dangers, and I have used it repeatedly in cases of rodent ulcer on the nose and in close proximity to the upper air passages.[7]

The subject of this report is a stout, healthy looking widow of 55. She contracted syphilis in 1904, and was treated for 18 months according to the best regimé then available at St. Bartholomew's Hospital. About seven years before she attended at the Royal Northern Hospital she began to suffer from a sore tongue, and for a further seven years she most patiently attended our venereal department where, in spite of vigorous and repeated courses of novarsenobenzol, silver salvarsan, mercury, bismuth, and iodides, the extraction of all her teeth, and the local application of all the accepted remedies, including X rays, the lingual condition remained *in statu quo ante*, and the strongly positive Wassermann reaction could not be shaken. In July, 1924, I noted that the dorsum of the organ was smooth, shiny and entirely destitute of the normal papillæ, and about the centre there was a roughly quadrilateral patch of hypertrophic sodden epithelium which closely resembled a fragment of adherent wet chamois leather three-quarters of an inch across at its greatest dimension. It was evident that this patch was the source of her symptoms, and in April of this year I considered that its destruction by means of Souttar's cautery was not only feasible but offered a good chance of cure. On May 28th she was admitted to the wards, and on May 31st, under a general anæsthetic (intratracheal ether), a stitch was passed through the muscle and the organ drawn forward. After thorough drying with gauze the whole of the affected area (and a little beyond) was coagulated with a suitable steam-heated applicator. The resulting débris was easily scraped away with a sharp spoon. The slight oozing was controlled at once by another application of the cautery, and to make certain that a sufficient depth had been reached the procedure was repeated a second time until the surface of the underlying muscle was exposed. The dry eschar was coated with a thin layer of Whitehead's varnish, and the patient sent back to the ward. No pain was felt on recovery from the anæsthetic, nor was this complained of until some five days later, when the slough separated and left a raw, tender surface which caused a good deal of trouble during the following week. Healing was complete when the patient was seen on July 8th. The white patch had been completely replaced by the shiny smooth surface common to the rest of the tongue, and there was no sign of contraction. The patient stated she had lost all her discomfort and was able to masticate freely and taste all her food.

The symptoms described under the heading of "Smooth Tongue" in Butlin's admirable book (pp. 141–43) are not present in this case, and it must not be forgotten that in his day the important element of dental sepsis was hardly considered in its relation to diseases of the tongue.

It is obvious that success in a single case cannot justify the drawing of broad conclusions, but I am hopeful that in a certain type of chronic and intractable papillomatous overgrowth the method will be found of considerable value. The technique is very simple

and with good anæsthesia should not give rise to difficulty. The local application of anæsthesin, which was not tried in this instance, may help future patients over the period when separation of the slough gives rise to pain.

Summary.

A chronic resistant patch of hypertrophic leucoplakia lingualis of syphilitic origin was submitted to coagulation by Souttar's steam-heated cautery with satisfactory results. The method is simple and offers no special difficulties. It should find a considerable field of usefulness in cases with demarcated hypertrophic patches and fissuring, but it is not suggested that it should be used until the recognised methods have received a thorough trial.

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TREATMENT OF POST-PARTUM HÆMORRHAGE.

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HÆMORRHAGE occurring after the birth of the child may have its origin at the placental site or at any other area in the genital tract where a breach in continuity of the surface has opened up the subjacent blood-vessels. It is helpful to determine from which source the bleeding occurs, and as a working rule it may be said that if bleeding is continuous and without relation to the state of contraction of the uterus a laceration is the cause.

Unless the torn surface is discovered the preliminary stages of the treatment must be identical with those of post-partum bleeding from the placental site, to be described later. Marked post-partum bleeding most often has its origin at the placental site. The retention of the partially separated placenta in the uterine cavity prevents the uterine muscle from exercising its full retractile effect on the gaping sinuses. The treatment of this bleeding is the main subject of the present article.

Ætiology.

Insufficiency of the uterine contractions may be due to various causes. The contractions of the third stage may in themselves be feeble and primary uterine inertia in the first stage of labour would presage this. Second stage pains are largely voluntary. The uterus contracts and causes a descent of the child on to the levator ani and the perineum; the reflex stretching of these structures provokes an expulsive effort of the abdominal musculature. Quite a small stimulus—in other words, a weak uterine contraction—might provoke a large voluntary expulsive effort, and it therefore comes about that the visible efficiency of the second stage is not a true criterion of the functioning of the uterus itself. Or the uterine contractions may be sufficiently strong and yet abnormality in the mechanism of placental separation may hinder the process. A further factor responsible for hæmorrhage is too early resort to Crede's expulsion. If the placenta is separating by the mechanism of retroplacental hæmatoma formation (Schultze's method) each succeeding uterine contraction is producing a uniform tension on the imprisoned blood, causing it to move centrifugally and force itself uniformly into the periphery of the area still attached. At the same time there is a shortening of the uterine muscle-fibres which further assists uniform separation. Obvious bleeding, consequent on this separation, occurs mainly after expulsion of the placenta. Premature attempts at Crede's expulsion may cause the retroplacental hæmatoma to find an outlet at one point, thereby destroying the mechanism, and since the placenta is still attached to its site by a large part of its circumference an obstacle is created to its further separation, which will then follow on the lines outlined by Duncan. It is possible also that undue stimulation of the uterus by vigorous kneading and by attempts at Crede's expulsion cause the lower segment of the uterus to retract down and interfere with placental delivery. These causes of failure to expel the partially separated placenta prevent complete retraction of the muscle-fibres and the consequent occlusion of the placental sinuses.

Prophylaxis.

It is important to counteract these ætiological factors. In the first stage primary inertia is overcome by resting and reassuring the patient, treating sleeplessness, and by quinine in ordinary therapeutic doses. In the second stage delivery must not be assisted in the presence of secondary inertia; the child should be delivered slowly and during a uterine contraction. The hand should be on the fundus throughout the whole of this process. In the third stage premature attempts at expulsion of the placenta must be rigorously avoided though the uterus should be supported and gently massaged, if necessary, to overcome flabbiness and to prevent the cavity filling up with blood. It is as well also to anticipate post-partum hæmorrhage in cases where there is a family or individual predisposition to it, and also where uterine inertia might be threatened by multiple pregnancy, hydramnios, or antepartum hæmorrhage.

Treatment.

When the placenta separates by Duncan's method bleeding occurs freely during the process, whereas in Schultze's mechanism most of the bleeding occurs afterwards. Loss of more than 15 to 20 oz. may arbitrarily be taken to constitute post-partum hæmorrhage. It is assumed that until this amount has been lost the uterus has been supported in the hollow of the hand and any flabbiness counteracted by gentle massage. If in spite of this hæmorrhage tends to pass these arbitrary limits, treatment must become active. It is well, before conducting the third stage of any labour, to have in readiness a pair of boiled rubber gloves and a syringe charged with 1 c.cm. of pituitary extract of a brand containing a minimum of foreign protein. If the hæmorrhage, although excessive, is not of immediate urgency the hands and forearms should be re-sterilised as efficiently as possible while an assistant controls the uterus. The accoucheur then supports the fundus in the hollow of the left hand while the patient lies on her back with the buttocks at the edge of the bed. The assistant bathes the vulva with water at a temperature of 120° F., a proceeding which stimulates the uterus to contract and at the same time helps to cleanse the parts. Then the uterus is rubbed up, and at the height of its contraction a forcible attempt at Crede's expulsion is made. If this fails 0·5 c.cm. of pituitary extract should be injected intramuscularly by the assistant. The next contraction is awaited and expulsion then attempted again.

Primipara; delivery at full term; hæmorrhage commenced freely after 20 minutes of placental separation, loss approximately 1 pint. Patient's condition good. Crede's expulsion failed. Pituitrin 0·5 c.cm. was injected and at height of contraction the placenta was expressed. No further loss.

If failure attends this second attempt the finest judgment is called for in deciding how long to temporise before invading the uterus. There is risk of losing the patient through continued hæmorrhage, but invasion of the uterus is attended in a certain number of cases with fatal sepsis. If removal can be performed with strict asepsis, as at a lying-in institution, the danger of infection is small and invasion should not be unduly postponed. If the home conditions and the personal hygiene of the patient are satisfactory the risks are

slightly greater, but it would be safer to err on the side of early placental removal than to expose the patient to further hæmorrhage. In proportion to the unsuitability of the surroundings the difficulty of maintaining asepsis increases, but notwithstanding this no patient should be permitted to drift into a stage where life is endangered. If the bleeding is in large gushes and the loss is rapidly mounting up to the 30 oz. mark, there is no alternative but immediate evacuation.

Primipara; forceps delivery at full term; prolonged second stage. Ten minutes after delivery bleeding was profuse and loss continuous. The uterus was not responsive. Crede's expulsion during contraction failed; 1 c.cm. of pituitrin a few minutes later was followed by an unsuccessful attempt at expulsion. Loss approaching 30 oz. without any indication of ceasing. Manual removal of placenta. 100 c.cm. of antistreptococcal serum injected in two days. Highest puerperal temperature 100° for one morning only.

If the bleeding has reached a pint and the patient shows signs of collapse, removal should not be delayed. Most women, however, will not be seriously affected by a loss of this amount. In some cases an injection of 0·5 c.cm. of pituitary extract is sufficient to cause temporary faintness shortly after the dose has been administered, and allowances must be made for this. If the bleeding has reached a pint and a half, the patient does not appear dangerously affected, and yet there are no signs of rapid birth of the placenta, it is as well to invade the uterus since further loss will certainly accompany separation and added bleeding might intervene.

Primipara; normal delivery; second stage of two hours. Profuse and immediate loss of 30 oz. Manual removal of placenta forthwith. Antistreptococcal serum injected (40 c.cm. in all). No raised temperature throughout puerperium. Involution normal.

Multipara; normal delivery; short second stage. An hour and a half after delivery the patient was losing very gradually, in all about 30 oz. Pituitrin 0·5 c.cm. injected. Expulsion not successful but the loss was much diminished. The placenta eventually needed manual removal. The patient's condition was fair throughout. Antistreptococcal serum, 80 c.cm. in all, was injected. There was no raised temperature throughout the puerperium.

If the bleeding has ceased it is a moot point whether a patient who has lost 30 oz. of blood and is shocked in consequence should be left to recover from this shock before evacuation. Occasionally a period of recovery may be allowed, but it should be as brief as possible, *and the accoucheur should certainly not leave the patient meanwhile.* His hand should be kept on the fundus uteri, especially if the foot of the bed has been raised, because any blood lost, instead of revealing itself by gravitating towards the cervix, is retained and tends gradually to fill the uterus, especially as the muscular tone has been diminished.

The best way of estimating blood loss is by careful collection in receivers of known size. The figures given allow for the defects of this method.

Removal of the Placenta.

The following technique should be carried out. The extravaginal part of the cord and the skin around is painted over with iodine. The left hand supports the uterus, the thumb being in front and the fingers behind; the gloved right hand, which has been kept sterile, is carefully introduced through the vulva into the vagina and is *not* withdrawn until the placenta is brought away with it. The cord is the best guide into the cavity of the uterus and the fingers follow its length until the placenta itself is reached. The uterine surface of the membranes is sought and separation commenced by a sawing movement. The external hand prevents the fundus from rising, thereby facilitating the manipulations of the internal hand. At this stage bleeding may be profuse, but the separation must be carried out deliberately and without any flurry. Sometimes difficulty is experienced with the last attached portion because it is the most inaccessible and because the hand becomes cramped. If this attached portion is a small one gentle traction on the mass of the placenta is permissible and will almost always effect separation This is better than withdrawing and reinserting the hand. With the external hand the uterus is stimulated to contract and the internal hand is expelled with the placenta in its grasp. When the placenta is removed and bleeding persists, bimanual compression should be practised. Pressure is applied by the internal hand through the anterior fornix, the external hand meanwhile anteverting and pressing the body of the uterus downwards. In this way the placental site is compressed and bleeding temporarily checked. The remaining 0·5 c.cm. pituitrin is injected intramuscularly at this stage. If these means are insufficient bimanual compression should be maintained till a douche of at least six pints at a temperature of 118° F. is available. A drachm of iodine or lysol is added to each pint. The cervix is drawn down to the vulva and an intra-uterine nozzle is inserted as far as the fundus. Irrigation is continued till bleeding ceases. The patient is promptly treated for hæmorrhage in the routine way. An injection of gr. ¼ of morphia is administered and 1 c.cm. of aseptic ergot is given intramuscularly and followed up with drachm doses of ergot four-hourly by the mouth. Where feasible blood transfusion should be tried whenever the hæmorrhage has threatened life. In spite of aseptic precautions antistreptococcal serum should be given about 20 c.cm. each day for five days. As soon as the patient's condition permits, she should be propped up in bed so that any exudate gravitates into the pelvis. It is always advisable, after hæmorrhage of any severity, or in any delivery where atony of the uterus is suspected, for the patient to be watched for six to eight hours for concealed bleeding, especially when the foot of the bed is raised.

Multipara; forceps delivery; placenta normally born but accompanied with a loss of about 30 oz. Patient affected by hæmorrhage. Foot of bed raised. Pituitrin 1 c.cm. injected; ergot by mouth. Uterus displayed good tone. Four hours later uterus was discovered greatly enlarged with blood-clot (about 15 oz.).

In conclusion, it should be pointed out that the definite diagnosis may be complicated by a ruptured uterus or hæmorrhage into the pelvic cellular tissues, but the lines of diagnosis and treatment outlined should cover nearly all cases of post-partum hæmorrhage.

Clinical and Laboratory Notes.

A NOTE ON DRAINAGE OF A PELVIC ABSCESS PER RECTUM

AND THE INDICATIONS FOR THE SELECTION OF THIS ROUTE.

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MY enthusiasm for drainage per rectum, in selected cases of pelvic abscess, was aroused when I was attached to the clinic of Mr. James Sherren, who often used this method.

The pelvic abscess to which I refer is one which is seen in surgical, as opposed to gynæcological practice and usually, but not necessarily, arises as a complication of acute appendicitis. As is well known, pus can accumulate in the pelvis without serious constitutional disturbance; it is therefore not surprising that these abscesses may attain considerable proportions before being recognised. The most characteristic symptoms to which they give rise are diarrhœa and the passage of mucus. The latter is of cardinal diagnostic importance, and is not sufficiently emphasised in current teaching; it is no exaggeration to say that the passage of mucus occurring for the first time in a patient who has, or has recently had, an attack of acute appendicitis, is pathognomonic of pelvic abscess

Rectal examination reveals a bulging of the anterior rectal wall, which, when the abscess is "ripe," becomes softly cystic. It is inaccurate to say that it fluctuates, unless fluctuation can be elicited between it and the anterior abdominal wall. Fluctuation cannot be tested with one finger.

Left to nature, a proportion of these abscesses burst into the rectum, after which the patient nearly always rapidly recovers. Deliberate opening into the rectum may be contemplated when the swelling is quite soft. Evacuation of pus by this method was extensively used 20 or 30 years ago, but the practice has fallen into disfavour, and has now been almost entirely supplanted by suprapubic drainage. We have not far to seek for the reason of this change. It is easy enough to mistake a loop of obstructed intestine occupying the recto-vesical pouch for a collection of pus. Again, a collection of pus in the pelvis does not necessarily imply that there is a confined abscess in this situation. In other words, rectal drainage is a blind operation, and has justly earned a reputation of being dangerous. All blind operations eventually fall into disrepute, for they are sooner or later fraught with disaster. Blind rectal drainage should be reserved for those cases where the history, the free discharge of mucus, the softly cystic swelling, and complete absence of abdominal rigidity, make the diagnosis of a localised abscess pointing in the rectum absolutely undeniable. If there is the slightest doubt—and it is sometimes difficult, particularly in postoperative cases, to be quite certain—laparotomy should be performed; but, having opened the abdomen in the doubtful case, having ascertained that there is no obstruction present, having gently felt a mass occupying the true pelvis, and having seen that that mass is completely walled off from the general peritoneal cavity, I submit that to close the abdomen immediately and then to drain the abscess into the rectum is a practice which fulfils the highest object of surgery. To choose the alternative (suprapubic) route for evacuating the pus seems most undesirable, if not positively mischievous, for of necessity Nature's barriers must be broken down and the general peritoneal cavity exposed to the dangers of a spreading infection.

Technique.—The patient is placed in lithotomy position. A rectal speculum is introduced and the swelling of the anterior rectal wall is seen. Very characteristic is the passage of mucus down the speculum. The mucosa overlying the swelling may be nicked, but this is unnecessary. A long pair of blunt-ended sinus forceps are taken and plunged into the swelling; the blades having been opened, pus pours down the speculum. Keeping the forceps still in the abscess cavity the speculum is withdrawn as far as the handles of the forceps allow. The right forefinger is guided by the forceps into the abscess cavity, after which the forceps and speculum are completely removed. A drainage-tube is then insinuated along the forefinger into the abscess cavity. This drainage-tube is long enough to protrude out of the anus, and, when in position, is secured to the anal verge by a stitch. The patient is nursed in Fowler's position and the tube removed on the fourth day.

Preliminary laparotomy and inspection have robbed rectal drainage of its terrors.

A CASE OF
SUBCUTANEOUS FIBROID SYPHILOMA.

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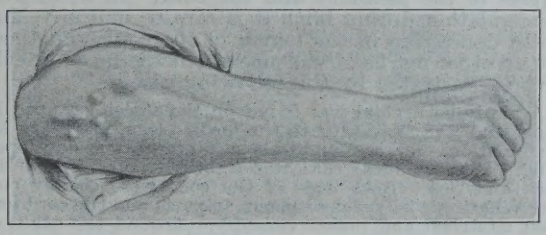
IT seems worth while to report the following case, attention having been called recently to the rarity of the condition by Dr. C. Worster-Drought.[1]

The patient was a chauffeur, aged 45, married. He had one living healthy child, one had died of "convulsions" in infancy, and his wife had no history of miscarriages. He had had no previous illnesses except venereal disease, stated to be gonorrhœa, when he was 20. His mother died of "heart trouble," and his father of cancer, both over 60.

About 20 years ago a lump appeared over the back of both olecranon processes at points where the arms rested on the well seat of the car he was then driving. They were small, single, and painless, and very gradually increased in size until 12 months ago, when the one on the right arm received a blow and a sore resulted. This kept breaking down, satellite nodules then appeared; at about the same time a second nodule appeared on the left arm, and a sore on the back of the right calf.

On the left arm there is a lump of cartilaginous consistency the size of a walnut over and partly attached to the posterior border of the ulna at its upper end. There is a smaller nodule distal to this. X rays show slight osteitis of the



Lesions on right arm.

posterior aspect of the shaft of the ulna. On the right arm there is a similar nodule, unattached to the bone, in a corresponding position, with several smaller nodules round it. X rays show no evidence of bony change in the ulna. Lastly, there is a thickened patch of skin measuring about 1¼ in. by ¾ in., brownish in colour, and not tender, on the back of the right calf. The pupils react normally, the knee-jerks are absent, and the blood Wassermann reaction is positive.

Histological Appearance of the Lesions.—The structure of all the lumps is similar, showing thick bands of almost hyaline fibrous tissue, between which is more richly cellular fibrous tissue infiltrated with small round cells, plasma cells, and in some places giant cells. The blood-vessels here show perivascular round-celled infiltration, and some of them endarteritis. No spirochætes were found in sections stained by Levaditi's silver method, and no tubercle bacilli were seen in a Ziehl-Neelsen preparation. The structure is that of a fibrosing gumma.

The points that seem worthy of special notice are the interesting exciting cause, the extreme chronicity of the lesions with the production of other similar nodules at a much later date, and the comparative freedom of other symptoms or signs except the absent knee-jerks over a prolonged period in a patient who only received antisyphilitic treatment probably with mercury for a short period after the acquisition of the disease.

I wish to express my thanks to Mr. W. H. Ogilvie, under whose care this patient was, for permission to publish details of his case, and also for the drawing here reproduced.

[1] THE LANCET, 1926, ii., 637.

A CASE OF
HOMICIDAL STRANGULATION OF A FŒTUS BY THE UMBILICAL CORD.

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OCCASIONALLY a child is born with the umbilical cord tightly twisted round the neck, and if no assistance is at hand to remove the pressure death might quite conceivably result from strangulation. In such a case the lungs would not be inflated, but a certain amount of breathing might occur; the head may have been born with the cord loosely twisted round the neck and the child might breathe before the descent of the body tightened the cord. If it were not removed the body would present signs of live birth with the establishment of breathing and also signs of death from asphyxia.

Assuming this to be possible a person who wished to cause the death of a child might strangle it with the umbilical cord without incurring suspicion of homicide. It would be difficult, for, unless the placenta were born with the child the cord would have to be cut before it could be used as a ligature. This

would arouse suspicion, for if a child were strangled by the cord in the natural process of birth one would not expect the cord to be cut. Moreover, if the cord is tied round the neck tightly enough to cause strangulation it must be pulled and handled with some violence, which would cause considerable displacement of the Wharton's jelly. Finally, and this is most important, homicidal strangulation by the umbilical cord is never carried out calmly enough to prevent injuries to the tissues of the fœtal neck from the fingers of the assailant and the cord. In accidental strangulation during birth it is rare to find anything but a depression in the region of the cord, and there are no other marks of violence about the face or neck. This is illustrated by the following case :—

A newly-born child was found on the street wrapped in paper and was forwarded to the medico-legal mortuary for examination. It was found to be a full-term, well-developed child. The umbilical cord was tightly twisted round the neck and tied. Both ends of the cord were cleanly cut. The Wharton's jelly was displaced in parts and the cord had been stretched and pulled violently. Around the edges of the depression made by the cord there were numerous ecchymoses, and marks of finger-nails were observed on both sides of the neck and on the left side of the face. The ears, lips, and tips of the fingers were blue and the case presented the typical signs of asphyxia.

On dissection the lungs were found to fill the pleural cavities, were mottled red, and presented all the signs of lungs that had breathed. Fine froth was found in the trachea and bronchi. On placing the lungs in water they floated buoyantly, and after cutting into pieces and applying pressure every part still floated. Around the base of both lungs, on the anterior surface of the left lung, and on the surface of the heart there were numerous small hæmorrhages. The stomach and duodenum, removed separately, both floated. There was no food in the stomach and the rest of the viscera were healthy.

From the above examination it can be affirmed with certainty that the child was born at full term, that it breathed and lived in the legal sense of the term, and that it was killed shortly after birth by homicidal strangulation with the umbilical cord.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF ORTHOPÆDICS.

THE first meeting of the session was held on Oct. 4th, when Mr. W. ROWLEY BRISTOW gave his presidential address on

ARTHRODESIS.

He said that among the changes in bone and joint surgery which had been evolved since 1912, both in this country and America, one of the most marked was the frequent resort to fusion of joint surfaces—i.e., arthrodesis. This must be regarded as destructive, seeing that the joint, as such, was destroyed, but as a rule it was preferable to the usual alternative—amputation—and the arthrodesis might cure the disease and abolish the symptoms.

Indications.—The indications for arthrodesis he conceived to be: (1) pain, (2) loss of function (with or without deformity). Both these often resulted from arthritis, including tuberculosis, concerning which latter there was marked difference of opinion, that he hoped would emerge in the discussion. Pain and loss of function might also ensue from trauma, and from paralysis the result of anterior poliomyelitis or of peripheral nerve injury. Treatment of paralytic scoliosis by spinal fusion was now on trial.

Contra-indications.—The contra-indication most often met with was fixation or loss of control of a neighbouring or corresponding joint, as in cases of fixed knee with a painful hip on the same side. Age he did not regard as so serious an argument against joint fusion as did many. It had been his practice, said the President, to treat all joint tubercle in children by conservative means, operating for it only in the adult. A study of end-results in series of cases so treated showed, however, forced an unfavourable view as to the efficacy of this treatment. Nevertheless, in his experience the result of the conservative treatment of Pott's disease was satisfactory, as was also that of such treatment of small joints. He contended that the ultimate results of conservatism in the case of tuberculosis of knee or hip were bad. In 50 cases of hip tubercle analysed by Mr. G. Perkins, the femoral head was diseased and altered in 41, resulting in fibrous ankylosis, with, later, adduction deformity. An important question was whether, when the head was affected, the hip should be arthrodesed, and if so, by what means? In the active stage of tubercle intra-articular arthrodesis did not produce bone fusion; but the methods of extra-articular arthrodesis, as advocated by Hibbs, of New York, and by the Boston school, gave this fusion, with stabilisation of the joint by means of a bridge of bone. The average stay in hospital of a patient with a tuberculous knee was very variable. Some children did better lying in bed wearing a Thomas knee-splint, others by having, after the acute stage was over, a weight-relieving caliper or patten-ended Thomas splint. Usually the commencement was in synovial disease. When the bone was affected in tuberculosis of the knee in children the President thought arthrodesis should be considered. His contention was that there was a type of joint which did not respond to conservative methods, and that each patient should be regarded as an isolated problem.

The President then proceeded to discuss the technique of the intra- and extra-articular methods of operating, remarking that extra-articular arthrodesis of the hip was a recent innovation, and that the procedure adopted by Hibbs was one which strongly appealed to him. Certainly occasions arose when it was necessary to fix the hip and stress was rightly laid on saving the periosteum. Where bone fusion had been done and patients so treated had subsequently died of intercurrent disease the specimens showed a firm arch posteriorly, and the fused joints between the articular processes. It was necessary, he said, to emphasise the use of arthrodesis in the treatment of painful joints following fractures or other trauma; it was the best for old mal-united ankle-joint fracture when arthritis was present. And not many subjects of fractured os calcis resumed full work. Wilson, of Boston, advocated immediate arthrodesis of the sub-astragaloid joint for fracture of the os calcis, as the patients were then able to return to their work in a reasonable time. Arthrodesis of the spine was practised in America for crush fractures of the vertebræ, while for low backache arthrodesis of the sacro-iliac joint was becoming popular.

The President had not found it necessary to fix either end of the clavicle for recurrent dislocation of the acromio-clavicular or the sterno-clavicular joints. In the case of the hip severe pain, with or without a crippling deformity, was what urged him to advise operation. When both hips, or a hip and a knee on the same side, were involved, arthrodesis of the hip was out of the question. Reconstruction of the hip, though still to be regarded as in the experimental stage, was well worthy of a trial. The operation was simple, and there was but little shock. The after-treatment consisted in moderate fixation for a month, after which the patient was allowed to get about. There should be frequent manipulation in the direction of extension and abduction. In conclusion he referred to the work of Dunn in this country in the treatment of paralytic deformities of the foot, his work having stood the test of time and resulted in a good functional foot. For many problems arthrodesis offered a successful solution, and especially was it valuable in relieving pain.

Discussion.

Mr. R. C. ELMSLIE said that 17 years ago he had collected a large number of cases of old excision of the knee for tubercle, done at various hospitals by

several surgeons as a short cut to a cure of the disease and to secure early ankylosis. The proportion in which there was bad deformity was very high. That deformity depended on two factors: interference with growth and bending of the bone at the point of fusion. He thought growth might be interfered with, not by disturbing the epiphyseal discs but by even going approximately close to them. If bony ankylosis was the best treatment for tubercle of bone, it should be done, but it should not be preached as the one method of treating tuberculous knees. In advocating fusion for tubercle there was the risk that it might be regarded as the routine operation, and that it might be done by men who were operators rather than surgeons.

Dr. W. T. GORDON PUGH said the great drawback in children's hospitals in the country was that children with tuberculous knees did not come at an early enough stage, but there had been a change for the better in this respect during the last two years. A result of this would be that arthrodesis would be necessary in a diminishing number of cases. He knew no more difficult disease to control than a tuberculosis of the knee which had passed beyond synovial involvement. In cases in which the great trochanter was much displaced upwards extra-articular arthrodesis would probably be necessary.

Mr. G. R. GIRDLESTONE expressed his agreement with the remarks of both the last speakers, and said it could not be too strongly insisted that there was no short cut of any kind to treatment of surgical tuberculosis. The disease was affecting the glands of the child as well as the joints, and he agreed that there was real danger in associating tuberculosis in a joint with operation on it for the cure of that disease. He agreed with Sir William Wheeler that spinal fixation was only part of the conservative treatment of spinal tuberculosis.

Mr. W. H. TRETHOWAN said that reconstructive operations were usually disappointing, and the final treatment seemed to be, mostly, some procedure to fix the joint. In very many cases a joint injured beyond the least trauma seemed to be ruined eventually, even though rest relieved pain for a time. He had not a good opinion of the operation of mushrooming—i.e., shaving off the whole of the head and leaving only the central portion of the neck. The small neck would not support the weight of the whole body. He did not agree with those who would refrain from setting up a high ideal of practice because some might do wrong operations.

Mr. NAUGHTON DUNN said that arthrodesis did not always relieve the pain of crushed fractures of the spinal column. Before operation was decided on in these cases it was well to fix the spine for a week or two; sometimes that relieved the pain, and rendered any operation unnecessary. Arthrodesis he had also found very valuable in cases of Charcot's disease of joints.

Mr. ALAN H. TODD expressed himself as favouring ankylosis of the spinous processes for aching backs and for crush fractures; in the Air Force, unfortunately, such accidents were not rare. He suggested that members of the Section as a whole should make more use of arthrodesis of the shoulder in cases of infantile paralysis. He had wondered what was the truth about the danger of activating, by operation, bygone tuberculosis, and referred to a case in which operation on a knee which had at one time been deformed by tuberculosis resulted in meningitis.

Mr. H. A. T. FAIRBANK agreed with Mr. Dunn about the results of arthrodesing Charcot joints; in selected cases he had found it very useful. He had attacked the acromio-clavicular joint by operation, and had had entirely satisfactory results. When tension made apposition difficult, he used wire or kangaroo tendon, and there was nothing to complain of.

The PRESIDENT, in his reply, said that in tuberculosis of joints he would operate only after prolonged rest and in carefully selected cases.

Reviews and Notices of Books.

MALARIA IN INDIA.

By Major-General Sir PATRICK HEHIR, K.C.I.E., C.B., C.M.G., M.D., I.M.S. (retd.). London: Humphrey Milford, Oxford University Press. 1927. Pp. 490. £2 2*s*.

SOME 17 years have elapsed since Sir Patrick Hehir brought out a modest work on the "Prophylaxis of Malaria" in India and out of it has been evolved the present compendious volume. There have been smaller treatises which have dealt with the many aspects of this great subject as it affects life in India, but the time is opportune for a comprehensive and authoritative work on the principal scourge on the empire, and Sir Patrick Hehir has been happy in his resolution to undertake it. We have here embodied the results of a life-work by one who has closely followed the subject from the very earliest glimmerings of truth to the fully expanded present knowledge of malariology.

The work is divided into three parts; the first concerns itself with the endemiology, epidemiology, and ætiology of malaria in India; the second with the clinical and pathological effects of the disease; while the third deals with the methods of prevention. There are also some 30 pages of appendices, for the most part statistical. In the opening chapters the overwhelming importance of malaria to the public health of India is indicated by the truly appalling statistics in relation to its ravages; the geographical distribution is illustrated by a coloured map specially prepared by Col. S. R. Christophers, and the meteorological conditions are also minutely considered. The consideration given to the anopheline mosquitoes in India, their nomenclature, habits, and characteristics is in proportion to their importance, and we have seen no other work in which this information is so minutely summarised. The malaria parasite and its life-history receive full consideration, as also do the clinical and pathological effects of the disease, and the vexed question of blackwater fever. Quinine, its preparation and chemistry, are subjects upon which it is particularly difficult to obtain information in books of tropical medicine, but here we are given a full description of its pharmacology in its bearing on the prophylaxis of malaria in so far as it concerns India. We may note that, in spite of the recent experimental evidence, the author still remains convinced of the value of quinine in prevention. The closing chapters appeal to the practical sanitarian, whom they will inform on anti-mosquito measures and the methods of drainage which must accompany them.

The volume is well illustrated by over a hundred text figures and 15 coloured plates reproduced from well-known works on malaria. Those calling for special mention are from Byam and Archibald's "Practice of Medicine in the Tropics," and the coloured figures of mosquitoes are particularly fine. The author is to be congratulated upon the fact that at the later end of an active career he has produced a volume which will rank amongst the classical works on malaria and which will be particularly useful to his many fellow medical officers in India.

RESEARCHES IN POLYNESIA AND MELANESIA.

By PATRICK A. BUXTON, M.R.C.S., D.T.M. & H., formerly Milner Research Fellow; Director, Department of Medical Entomology, London School of Hygiene and Tropical Medicine. Assisted by G. H. E. HOPKINS, M.A., F.E.S. Published by the London School of Hygiene and Tropical Medicine. 1927. Pp. 260. 10*s*. 6*d*.

Dr. Buxton has produced a noteworthy and readable account of his researches in Western Samoa, the Ellice and Tokelau Islands, and, finally, of his travels in the New Hebrides in the latter half of 1925. His work is in direct continuation of a number of expeditions to the Pacific Islands which have been undertaken by the London School of Tropical Medicine during the last 17 years. Leaving England in November, 1923,

Buxton and his party made their way through Panama, where they were given opportunity to study the public health arrangements of the Canal zone, to New Zealand. Travelling through Fiji they reached Apia in the middle of January, 1924. For the whole of 1924 and 1925 Dr. Buxton made Apia Hospital his base, and thence was able to make trips further afield. He gives a description of the geography and structure of the islands, and comments on the geology, flora and fauna. His notes on the climatology of Samoa include a mass of accumulated data of considerable value, such as solar radiation, rainfall, atmospheric humidity, wind, evaporation, and katathermometer readings. Dr. Buxton has, moreover, devised a new instrument—the radiation integrator in vacuo—which showed the monthly irradiation to be as high as 12 per cent. of the annual total in February, when the sun was vertical, and as low as 6 per cent. in June and July, when the sun was furthest from its zenith.

The third part of the volume deals with medical entomology—the natural and introduced species of the island insect fauna. We learn incidentally that the common flea was introduced to Rarotoga in 1820 by Goodenough, who discovered that island; "the placid natives of Aitutakai, observing that the little creatures were constantly restless and inquisitive, and even at times irritating, drew the reasonable inference that they were the souls of deceased white men." As to the mosquitoes, south and east of the New Hebrides, the genus anopheles is absent and no malaria occurs in the Loyalty Group, New Caledonia or any part of Polynesia. *Anopheles punctulatus* and malaria occur eastwards as far as 170° E., and southwards as far as 20° S. Outside this area, malaria is found nowhere except in Aneityum, which is only a fraction of a degree south of 20° S. The factors underlying this peculiar distribution have still to be ascertained. In the entomology of the New Hebrides the morphology and larval characteristics of *A. punctulatus* take a premier place. A large amount of work on the bionomics of the Culicidæ of Samoa has been done, especially on the irritating insect known as *Aëdes kochi*, and upon *Aëdes variegatus*, the chief vector of filariasis in Polynesia. Fine line drawings illustrate this portion of the report, and beautiful photographic plates of the breeding places of this insect are included. An account of intricate work directed towards evolving means for reducing the prevalence of this mosquito occupies over 100 pages of the report. Dr. Buxton's efforts have greatly extended our knowledge of this particular mosquito. We look forward to the appearance of future volumes which will contain the results of his pathological observations.

Evolution of Preventive Medicine.

By Sir A. Newsholme, M.D. London: Baillière, Tindall and Cox. 1927. Pp. 226. 11*s.* 6*d.*

In this interesting book the civil servant's urge to present exact facts is tempered by the scholar's delight in his subject, as when the author tells the history of plague with regard to a dawning appreciation of infection. We learn how in time of food scarcity, in 664, God was solicited in prayer to remove by some species of pestilence the burdensome multitudes of the inferior people, and of how the pestilence came, but fell alike upon the authors of the petition and the lower orders.

The evolution of preventive medicine is here traced from belief in supernatural causation of disease to knowledge based on ascertained facts. Error and truth, we are shown, often struggled together, the weight of accepted authority usually tipping the beam. But little over a century ago progress had hardly emerged from the twilight of futile libations, amulets, charms, and witchcraft. Differentiation of the infective fevers had hardly commenced and all were vaguely, but not unwisely, ascribed to filth. Cleanliness of person, of food-supply, and of home, banished the louse, excremental contamination, and the flea, and with them typhus, typhoid, and plague; even though early sanitarians wrought better than they knew. We are well reminded of the debt we owe to Harvey, Sydenham, and Jenner, and to men like John Snow and William Budd, to Chadwick and Southwood Smith, to Farr and Simon; each in his day fought and won an uphill fight for dawning knowledge against apathetic prejudice, and we who therefore live in a sanitary age find it hard to appreciate how life was lived when ordure was flung into the reeking streets, when no water in a town was safe to drink, when only 250 out every 1000 children born attained the age of 5 years. The author shows good reason why he is no mere *laudator temporis acti*. It is good for us to accompany him when he tells what we owe to Wendell Holmes and Semmelweiss, to Pasteur and Koch, to Takaki and Manson, and to bow our heads in thanks that these and others tilled the land where we reap the harvest of health. A second volume is promised dealing with more recent advances.

The Harvey Lectures, 1925–26.

The Harvey Society of New York. London: Baillière, Tindall and Cox. 1927. Pp. 229. 18*s.*

The Harvey Society of New York, which exists to promote lectures by eminent laboratory workers on the scientific branches of medicine, publishes every year a collection of the most valuable of the papers read before it, and most of the greatest names in research are to be found in its list of honorary members. The latest of these volumes illustrates the scope of its activities. The first paper, by Dr. F. R. Nager, of Zurich, surveys the recent progress of experimental otology, a branch of study which has been handicapped by the difficulty of obtaining reliable histological material. Dr. John Northrop, of the Rockefeller Institute, contributes a treatise on the dynamic chemistry of pepsin and trypsin digestion, and Dr. Warren Lewis, of the Carnegie Institution of Washington, an account of the metamorphosis of mononuclear cells into macrophages, giant cells, and epithelioid cells. The chemistry and physiology of the parathyroid glands are dealt with fully by Dr. J. B. Collip, of Alberta University, whose experiments have demonstrated the part played by these glands in phosphorus as well as in calcium metabolism. "Empiricism and Rationalism," by Dr. E. B. Wilson, professor of vital statistics at Harvard, describes the working of both these methods of ascertaining truth, and their significance to the statistician; his paper reminds the reader that columns of figures which appear so solid to the grasp are liable to disappear like mist under intensive criticism, and that the accurate summing-up of results or observations is a most complex task. The practical importance of statistical science as applied to medicine is well shown in the lecture, by Dr. Knud Faber, of Copenhagen University, on the progress of medical therapy. Statistics alone made possible the work of Pierre Louis in creating out of chaos many of the disease-entities which a century of medical practice have confirmed, and in establishing the probabilities of their cure by given processes. Dr. Faber points out that the statistician alone can give the research worker a gleam of hope that his results may be of real general value. The great advances of substitution therapy, serum therapy, and chemotherapy were made possible only after a definite disease had been discovered and experimentally reproduced, and after the observations of experiment or empiricism had been illuminated by numerical statistics. The seventh lecture is a contribution by Dr. B. Brouwer, of Amsterdam, to the comparative anatomy of the nervous system, in which he discusses the functions of the vital and non-autonomic sensory systems at various stages in evolution.

A society which can obtain contributions as important and diverse as these has an obvious value to medical science. Not only laboratory workers but all who are interested in the vast and patient work on which their everyday practice is founded will find in these lectures inspiration and encouragement.

LECTURES ON INTERNAL MEDICINE.

By KNUD FABER, M.D., Professor of Internal Medicine, University of Copenhagen. New York: Paul B. Hoeber. 1927. Pp. 147. $3.00.

IN reprinting the four lectures he gave in the United States last year Prof. Knud Faber has provided an exciting volume for physicians, house physicians, and all serious students of medicine. Is achylia gastrica the expression of an underlying gastritis? Is the anæmia of Addison merely one variety of a group of severe anæmias, all of which are of intestinal origin? Is there a form of alimentary glycosuria which is not diabetic, although accompanied by hyperglycæmia? In each of the three lectures which form the first three chapters Prof. Faber answers "yes" to all of these questions, and the instructed reader, realising the importance of these problems, will delight in the author's masterly defence of his thesis. The laboratory worker will also find food for reflection in the book. For each of these lectures raises points of doubt stimulating to the pathologist. To what extent may the cases of achylia here enumerated be accepted as absolute? Is the risk of post-mortem change definitely excluded in the microscopic specimens from which the evidence of gastritis was chiefly derived? Is it true that there is no absolute method of diagnosing pernicious anæmia from the blood-picture? And are the micro-methods of blood-sugar estimation as accurate as is here assumed? All these questions spring to the mind, and it is in the doubts which it arouses, as much as in the clearness of its exposition, that the book is a stimulating and delightful one.

LABYRINTHINE VERTIGO.

Les Vertiges Labyrinthiques. Par ANDRÉ MOULONGUET, Oto-rhino-laryngologiste des Hôpitaux de Paris. Paris: Masson et Cie. 1927. Pp. 165. Fr.18.

THE examination of the function of the vestibule and semicircular canals is highly intricate. Moreover, the development of experiments designed to elucidate their action, together with the clinical methods which depend on them, is so recent, that it is extremely difficult for the learner to obtain a good grasp of the subject. In this little monograph a very successful attempt is made to present the matter in a clear light. After a short chapter on anatomy, the physiology of the semicircular canals and of the otolith apparatus is described. There follows a practical section on examination of the patient, and a useful chapter on the differential diagnosis of labyrinthine from other forms of vertigo; and, finally, a helpful summary of the various aural lesions in which vertigo occurs. This is a thoroughly practical little book, which well repays study.

APPLIED PHYSIOLOGY.

By SAMSON WRIGHT, M.D., M.R.C.P. Humphrey Milford, Oxford University Press. Pp. 418. 15*s*.

Dr. Wright has given in this volume an account of those functions of the human body which are most commonly deranged by disease, and of the alterations that disease effect. Wherever possible the function, normal or abnormal, of any particular organ is illustrated by reference to the corresponding normal and pathological states in man.

Emphasis is laid in the preface on the importance of bringing the student of physiology early into touch with the signs exhibited by patients suffering from those derangements of function of which human physiology gives a ready interpretation. But while the reactions of man to changes in his environment are well shown, the comparative and physico-chemical branches of physiology are not neglected, and it is made clear to what extent the analysis and interpretation of some human pathological states is facilitated by their study, for example, in the conception of conduction with decrement in the various forms of peripheral neuritis. It seems questionable if any useful purpose is served by introducing into a work of this scope information dealing with problems so involved as that of the sympathetic innervation of voluntary muscle, and with results still lacking confirmation, such as those of Voronoff's grafting experiments in man.

We note misprints on page 211, where $\frac{100}{3\cdot5}$ should be $\frac{100}{15}$, and on page 304, where "impurities" should presumably read "impulses."

A large amount of valuable information, including the most recent additions to knowledge, is here condensed into a comparatively small space, and still the book remains readable. It should prove most useful to those reading for their primary F.R.C.S., final M.B., or for the M.R.C.P. Many figures are included, and references to important papers from which information has been drawn are appended to each section.

RADIOLOGY IN MEDIASTINAL AFFECTIONS.

Essai sur une Nouvelle Radiologie Vasculaire. By MANOEL DE ABREN. Paris: Masson et Cie. Pp. 214. Fr.38.

RADIOLOGY plays an important part in the diagnosis and treatment of mediastinal affections, and reveals more than does clinical examination. In recent years much work has been done on the radiological examination of the mediastinum, especially by the French school, and elaborate methods of measurements of the heart and great vessels have been evolved. Dr. de Abren deals chiefly with some modifications of these methods, and more particularly with the measurements of the aorta in health and disease. The author explains his technique and theories clearly, and the work is profusely illustrated with photographs, diagrams, and radiographs.

RENAL DISEASE.

Modern Methods in the Diagnosis and Treatment of Renal Disease. Third edition, enlarged and revised. By HUGH MACLEAN, M.D., D.Sc., F.R.C.P., Professor of Medicine, University of London. London: Constable and Co., Ltd. 1927. Pp. 135. 12*s*.

THE publication of a third edition of this monograph is an indication that the value of functional renal tests in the diagnosis and treatment of renal disease is becoming widely recognised. The tests described in previous editions have not been altered or added to. Prolonged use has proved their reliability and, properly used in conjunction with clinical examination, they are convenient and informative.

The chapter on treatment is the only part of the book that has been rewritten. In this section the discussion on diet is especially valuable. The author points out that there is no evidence that a moderate protein intake is a cause of nephritis or arteriosclerosis, and that the tendency to give a very low protein diet is in many cases wrong, because its debilitating effect may be worse than the disease itself. Even if there is considerable albuminuria it is a mistake to limit excessively the intake of protein for long periods, and when renal tests indicate a marked improvement of function in spite of the albuminuria, exceedingly good results may be obtained by giving a comparatively large amount of protein. It is, however, important to give fruit and vegetables with protein as early as the disease allows. The diet sheets for use in acute nephritis should prove very useful. The indications for and value of a salt-free diet and high-protein diet are also clearly discussed, and the chapter puts the treatment of renal disease on as firm a foundation as present knowledge permits.

This monograph gives the clinician a clear idea of the practical value of functional renal tests, and shows when and how they may be used to gain further knowledge when clinical observation has reached its limit.

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ABNORMAL PSYCHOLOGY.

Readings in Abnormal Psychology and Mental Hygiene. Edited by W. S. TAYLOR, Professor of Psychology in Smith College. London: D. Appleton and Company. 1927. Pp. 789. 16*s*.

THIS is a psychological anthology of great merit. It is planned for students of general psychology, sociology, and education rather than for those who are intent upon a deep research into the subject of psychological medicine, but even the advanced psychiatrist will find it of value for its enormous bibliographical range. It deals shortly with crude mental disease and with academic psychology, and is chiefly devoted to a survey of those functional disorders of the mind which cause so much and such intense misery without incapacitating their victims from living in society. Every facet of these ills is treated very fully. The method has been to select for each section the extract from modern psychological literature in which the editor judges that the matter has been treated most clearly and usefully for the student. The choice has been made from a very long list of authors, which includes some of the first writers on this subject in the world. Janet, Rivers, James, Jung, and Morton Prince are liberally drawn upon. Moreover, instructors using the collection as a class text-book will be enabled to develop further what topics they wish by using the reference-lists which end each chapter. The result is a very fair survey of modern thought in the realm of functional abnormalities.

New Inventions.

A SIMPLE LIGATURE APPLICATOR FOR TONSILLAR AND OTHER DEEPLY-SEATED VESSELS.

THE apparatus consists essentially of a glass or metal tube of about four inches in length and a metal carrier, somewhat longer, with a notch at one end. The ligature, preferably of catgut, is doubled and pushed through the tube by means of this carrier (Fig. 1). The projecting loop of the ligature is then

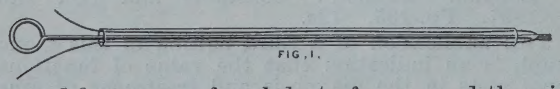


FIG. 1.

secured by means of a pledget of gauze and the wire guide removed. One loose end of the ligature is then marked by means of ink or a knot in order to distinguish it. A half knot is then made in the other loose end and the marked one pushed through it. The half knot is then tightened (Fig. 2). We thus

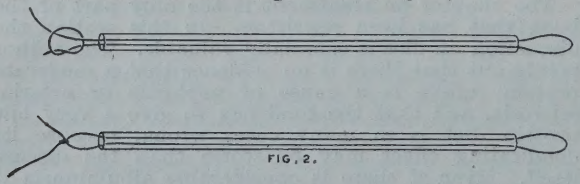


FIG. 2.

have a sliding loop round the marked end. The loop (which may be considerably larger than is shown in the illustration) is passed over the forceps with which the bleeding vessel has been clipped and pushed down by means of the tube till it encircles the vessel. If the marked external end is then pulled, the loop on it will pass down the tube and grip the vessel (Fig. 3 (2)).

As it will be found that the non-marked end should be about twice the length of the other, the "doubling" may be made at the junction of the first and middle thirds. The drawing down and tightening of the knot may seem to occasion an undesirable amount of friction on the vessel; it can therefore be closed up on the forceps until only a small loop is left to be slipped on to the said vessel (Fig. 3 (1)).

After numerous trials on a piece of gauze I tested it on the living subject, using catgut for the ligature of a vessel during a tonsillectomy. The ligature was effected without difficulty, and when I saw the patient four days later it held firmly even when I tried to pull it away with some force. This experience has now been frequently repeated. When a glass tube

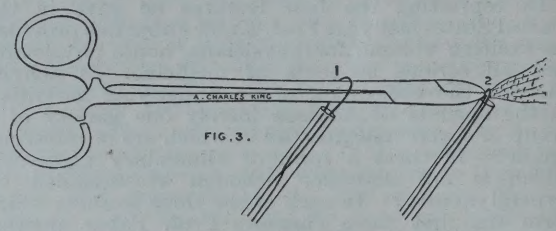


FIG. 3.

is used we have the satisfaction of seeing the knot passing down it as well as judging by sense of touch.

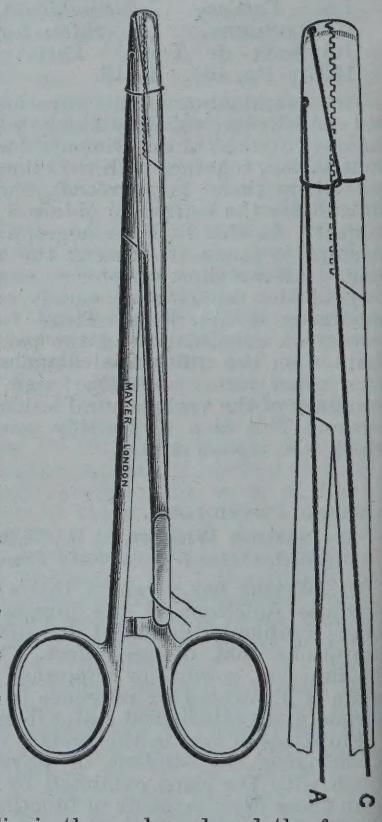
The slip-loop was first brought to my notice by C. G. Coakley, of New York, but the tube is my own idea, and, so far as I can see, is likely to facilitate the ligation of vessels in other regions as well as the throat, such as the upper part of the wound cavity in the dissection of malignant or tuberculous glands in the neck, and possibly also in operations in the thorax and abdomen.

The carrier and tube were made for me by Mr. Charles King, of Devonshire-street, London, W. 1.

JAMES DUNDAS-GRANT, K.B.E., M.D. Edin., F.R.C.S. Eng.

PRESSURE FORCEPS.

THE pressure forceps illustrated below, though designed for use especially in tonsillectomy, will be found useful wherever access to a bleeding-point is limited. The forceps consist of an ordinary straight pair, provided with a small, smooth hole in one beak as shown. The ligature is threaded through this hole and the free ends retained in the clip provided. Having secured the bleeding point, one end of the ligature (C) is withdrawn from the clip and passed around the shank of the forceps to include the other strand (A) of the ligature, making a half-hitch. By pulling on the strand retained in the clip (i.e., A), the knot (B) is drawn down to, and over the point of the forceps to encircle the tissue, forming, as it does so, a complete half-knot. The strand of the ligature retained in the clip is then released and the forceps withdrawn altogether, or, if necessary, only partly when they may be used as a guide to a second knot.



I am indebted to Messrs. Mayer and Phelps, of New Cavendish-street, W., who have made them for me.

NORMAN M. EADIE,
House Surgeon, Golden-square Throat, Nose, and Ear Hospital.

THE LANCET.

LONDON: SATURDAY, OCTOBER 8, 1927.

THE UNIVERSITY OF LONDON.

SOME three months ago it was announced that the purchase of the Bloomsbury site by the University of London from the Duke of BEDFORD had been completed, £400,000 having been received from the Rockefeller Foundation, whose splendid services to metropolitan education will never be forgotten, and £125,000 from a special Government grant. The University thus enters upon a stage of development where not only will it be able to discharge its great work better, but where it can realise in a fuller manner the extensive promise of that work as implied by its title. The recent articles in our columns written by Mr. PERCY WALLACE, who was Secretary to the Senate from 1901 until 1923, supply a succinct story of the University. They explain the constitution and the machinery of working, and show how great a claim upon the sympathies, not only of the metropolis but of the Empire, the progress of the University should possess. This progress is necessarily regarded with particular attention by medical men, for the faculty of medicine is, within the elaborate construction of the whole, one of the most elaborate divisions, and no stress need be laid upon the high position which the medical degrees of the University take, and have always taken. At the same time the medical curriculum has been responsible for many vexatious dissensions in the history of the University, owing to the fact that medical education cannot be conducted without the intermediary of special schools and training which were not contemplated in the original ideals of the University. The existing constitution of the University is complicated, but it has been designed, with a reiterated amount of expert advice, to meet conditions of great difficulty, and now seems to be meeting them fairly.

What is being accomplished will be better understood if some of these difficulties are appreciated, as they are set out in Mr. WALLACE'S lucid statements. The University was founded originally as an examining body of an Imperial character, and its great default in respect of teaching in the metropolis began to make itself acutely felt some 45 years ago. The teachers of medicine of the metropolitan schools were in the forefront of the agitation for reform which then arose, because of the difficult position in which the London medical student was placed in respect of obtaining medical graduation. It is true that examiners appointed by the University were ready to pass for graduation such London students as satisfied their tests, but the University was in no general relation with the teaching of the students or with the organisation of the London schools at which the training was given. In 1885 the Royal College of Physicians of London and the Royal College of Surgeons of England approached the University with a suggestion for the recognition of their diplomates for a London degree. Nothing came of this, nor of a scheme by which the Colleges themselves should found a one faculty university, nor of one under which University College, London, and King's College, London, should form the nucleus of a new university, nor of a design for a new university to be established for London students, leaving the old university to discharge its Imperial functions. All these propositions were so open to criticism that their failure cannot be wondered at, despite the ingenuity and industry with which they were put forward; but at least they served a common purpose in showing how fundamental and widespread was the dissatisfaction with the teaching provisions of the University as it existed. In 1892 a Royal Commission on the subject was appointed—the second with a similar reference—and this body reported two years later, when its recommendations, which form the basis of the present organisation of the university, confirmed the substantial grounds of claims for reform. Under this report the University was divided into internal or collegiate students and external or non-collegiate students, and a set of statutes and regulations of great scope and particularity emerged from the Statutory Commission set up after the issue of the report. It is at this point that Mr. WALLACE has taken up the long tale in our pages, and has succeeded in explaining to the London student the present working of his own University, seen from the teaching aspect.

It can be understood that the promulgation of the statutes and regulations produced vast relief among all those who had rejected the various schemes of reconstitution, but no doubt the relief has been succeeded by some bewilderment owing to the complicated nature of the new procedures. Many earnest students of education have failed at first to recognise either the pattern or the objects in view, and the probability of confusion will be fully appreciated by those who read Mr. WALLACE'S description of the present University and of the machinery for its conduct; the embarrassments of the faculty of medicine will be understood as arising from the peculiar situation of medical students, who are alike "external" and "internal," the former because their provenance is world-wide, and the latter because their places of education as well as their examinational courses are subject to control outside the University's authority. It is not possible to admit medical students to graduation whatever the methods in which they may have prepared for their tests: medical registration is necessary for the legal practice of medicine, and is only granted as a result of standard examinations following upon a curriculum supervised by the General Medical Council. From this has sprung prolonged controversy. During the sad period of agitation to which we have referred, and of which a full history will be found in the pages of THE LANCET,[1] this is the fact which created obstacles that at one time seemed insuperable, if justice was to be done. A way out appears to have been found for a balancing of all claims while bringing the University of London into close relation with the teaching of medicine at the medical schools of the metropolis, and this without infringing upon the rights of those students which the University had in prime consideration at its origin. With the fundamental question of a central home settled, and with the wheels of activity revolving harmoniously, the outlook is good.

ERYTHEMA NODOSUM.

THE curious little outbreak of erythema nodosum, described by Dr. MAURICE MITMAN on page 751 of our present issue, recalls the work of ALFRED AUSTIN LENDON, of Adelaide, who in 1905, and again in 1925, adduced good grounds for renaming the condition "nodal fever." In a monograph published in London in 1905 he asserted that erythema nodosum is merely

[1] See, for a summary, THE LANCET, Sept. 3rd, 1898, p. 591 et seq.

the rash of nodal fever. To this disease he attributed a seasonal incidence in the spring, a highly inconsistent sex-incidence with a female preponderance, and an age-incidence well in keeping with other zymotic diseases. As a result of long personal observation of 62 cases in general practice he described the incubation period as about 14 days; the infectivity as mild; the prodromata as severe and precise, with invariable conjunctivitis, arthritic pain, and faucitis, and malaise approaching the early state of typhoid fever; the clinical course as resembling scarlet fever; a great liability to relapses; an anæmic and debilitated state in a long convalescence; and finally the rarity of second attacks. These views have never been generally accepted, and it is difficult to account for every case of erythema nodosum so neatly.

In reviewing the whole literature recently G. F. WALKER[1] has reclaimed LENDON'S work but has pointed out that the priority for the conception of nodal fever belongs to HARRISON, of London, who addressed the Dermatological Society in 1900 to the effect that erythema nodosum, and several other diseases such as herpes, are capable of sharper definition into acute febrile infectious maladies. WALKER has drawn attention to the persistence with which records appear of erythema nodosum attacking two, three, or four persons in the same environment, and also to two little epidemics, accounts of which have already been published. But his paper is also concerned, on the one hand with the final relegation out of clinical medicine of the supposed association between erythema nodosum and rheumatic fever, and on the other hand with the undoubted association between certain types of erythema nodosum and tuberculosis. The traditional association between erythema nodosum and rheumatic fever dates back to the writings of STEPHEN MACKENZIE in 1886. This association was not then shown according to modern standards, but though MACKENZIE'S original article does not contain one scrap of evidence whereby erythema nodosum can be placed in the rheumatic series as we understand the term to-day, yet his obsolete and fallacious conclusions have been solemnly accepted for half a century. Clinical evidence of the association is singularly lacking.

The story is very different when we examine the allegations of its association with tuberculosis; not without good reason did it receive the adjective "ominous." According to numerous records in European and American literature erythema nodosum enjoys a position of certainty as a herald of tuberculosis, and there are hundreds of cases on record in which it has been followed, sometimes rapidly, by pleurisy, phthisis, or the lesions of surgical tuberculosis. Two recently recorded fatal cases of erythema nodosum were found at autopsy to be cases of miliary tuberculosis, and tubercle bacilli and a tuberculous architecture have sometimes been found in the nodes. Bazin's disease, or erythema induratum, which is acknowledged to be tuberculous, usually starts as an indolent relapsing erythema nodosum. Among the more weighty recent communications on the association is the paper by R. MASSINI, of Basle, which was recently noted in these columns.[2] A complete survey of the incidence of erythema nodosum in tuberculous patients, and an examination of the strange selective nature of the disease, together with a solution of the problem of the odd sex and seasonal incidence even in frankly tuberculous cases, and an authoritative announcement of the real prognostic significance would be of considerable value. Sometimes urticaria has qualities which make it resemble erythema nodosum and the same may be said of erythema multiforme. Gummatous lesions and excretion rashes have likewise been confused and it is probable that a big node in erythema nodosum is occasionally incised because of its resemblance to cellulitis. Erythema nodosum is a manifestation rather than a sharp clinical entity, and should no longer be entangled with the ætiology and prognosis of the rheumatic series. Its occurrence should stimulate a search for a tuberculous lesion, whilst authentic evidence of the infectivity of the disease and examples of its exanthematous nature are always worth recording.

[1] G. F. Walker: Brit. Jour. of Derm. and Syph., 1927, xxxix., 241, 256.
[2] THE LANCET, Sept. 3rd, p. 512.

THE ROYAL ARMY MEDICAL CORPS.

IN the Students' Number of THE LANCET we stated a few weeks ago that the publication of the Royal Warrant of 1926 had removed many of the grievances of the officers of the Royal Army Medical Corps—grievances which had been pointed out frankly in our columns on many occasions. And we went on to recommend the Service as a career to young medical men. So that it has been a matter of regret to see the Service in certain places singled out for adverse criticism. Confidence has only recently been restored, and we think that those who are depreciating the opportunities of the young doctor who joins the Corps to-day have remained in considerable ignorance of what those opportunities now are, and any effect such words may have will be to retard an onward movement that is already taking place. It may be fairly expected that the Deans of the medical schools which are now opening for the October session will put the matter in the right light before their students. Young qualified men are showing a comprehension of the situation, for the competitive examinations for regular commissions, which had been in abeyance for some time, are now to be reinstated. The gist of the regulations for admission to the Service will be found in the Students' Number and in the "Conduct of Practice," while they can be obtained in full from the War Office; our advice to those who feel, after the study of the information, that a career in the Army would be an acceptable one, is that they should not delay to act. The rates of pay and allowances are good, the opportunities of post-graduate study are generous, and the work is varied and interesting; a quick decision to compete for a commission will have its reward in the acceleration of promotion.

Here are some points for the man to think of who is debating the matter in his mind. The improvements in the Service which have been made during the past 12 months in pay and general conditions of service are substantial, and the prospect of rapid promotion accompanies these changes. The pay and allowances of an unmarried Lieutenant now amount to approximately £511 a year, while a Captain, if unmarried, gets at present rates £617, and if married £709. The figures may not tempt those who think only in terms of the positions achieved by the most pecuniarily successful of the profession; but they will not be considered inadequate by those who feel that they are entering the Service from a deliberately exercised choice of the career with its many-sided openings. The rates of pay increase with promotion in rank and years of service till they reach the maximum of over £2000 a year, and in addition each year of service carries its element of gratuity or pension. The pace of promotion must be variable, but an officer is eligible

for promotion to the rank of Captain on the completion of three and a half years' commissioned service, and to the rank of Major on the completion of 12 years' commissioned service, provided that in each case he has passed the necessary examination and is recommended for such promotion. The recognition of merit as a factor for progress in the Service runs, it will be seen, throughout, for promotion to the higher ranks is by selection. The occurrence of vacancies must dictate the rate of promotion; but during the past year, we learn, 23 Majors were promoted to the rank of Lieutenant-Colonel.

One feature of the present conditions of service should be specially attractive to newly qualified practitioners. Those who take up a hospital appointment can, under certain conditions, get ante-dates to their commissions. In this way the time spent in acquiring the experience which comes from holding a hospital appointment will count as time in the Army. Hence the value of joining the Corps soon after qualification, so as to be quickly ripe for promotion, has no longer to be set against the value to a young doctor of holding house appointments; instead of these appointments being an indirect deterrent to advance by postponing entry to the Service, they have become a definite asset, while the ante-dating of the commission secures the young man from loss of seniority. The advantages of joining the Corps while it is short of junior officers are obvious, for it would seem that those who obtain commissions in it now cannot fail to find themselves in really responsible places while still in early middle life. And if they are minded to retire after seven years with the Corps, and while still at an age when many practitioners are just beginning to reap the fruit of their training, they will have earned a gratuity of £1000 to assist in their establishment of a civil practice.

A LEADER IN PHYSIOLOGY.

THOUGH currents of action in the heart were demonstrated as long ago as 1856, their systematic investigation did not come into the field of practical medicine until 1903 when the string galvanometer was first used to record them. This advance was due to Prof. WILLEM EINTHOVEN, whose death occurred at Amsterdam on Sept. 29th, and it was only one of many services rendered to science by this distinguished physiologist and physicist. Born at Samarang, in Java, in 1860, he was appointed professor of physiology at Leiden at the early age of 25, and spent the remainder of his life in this old and quiet city. Profound learning and elaborate research in time gained him world-wide recognition in various branches of physics, but his fame will chiefly rest on the cardiological work to which his later years were mostly devoted. The electrocardiograph as it is used to-day is of his devising, and the notation of its tracings—the well-known "P.Q.R."—is that which he suggested. The clinical application of his methods, notably by Sir THOMAS LEWIS in this country, has enormously enlarged our knowledge of the heart in health and disease, and EINTHOVEN well deserved the Nobel Prize for physiology and medicine bestowed on him for 1924. In the same year he was made an honorary member of the Physiological Society, and the respect in which he was held by English physiologists became personal as well as academic when he acted as their host on the Society's visit to Leiden. The latest of his English honours was foreign membership of the Royal Society, to which he was elected in 1926.

Annotations.

"Ne quid nimis."

THE NEW LIFE-TABLES.

IN this issue and the last we have summarised the contents of a volume containing the new national life-tables and the Government actuary's report thereon. This report is of particular value because Sir Alfred Watson's knowledge of and interest in the subject matter of his analysis are such that he has completely avoided any temptation to dwell mainly upon those technical aspects of construction and graduation which, interesting and important to professional statisticians and actuaries, are almost unintelligible to the average reader. Indeed, he has not disdained to point out that the real value of life-table constants which enjoy great popular prestige, such as the expectation of life, is restricted and that there are cases where to present the facts of mortality in life-table form at all has little to recommend it.

In general, the results of this analysis of *post bellum* mortality are gratifying. At most ages, especially in childhood and early youth, the people of England die at much lower rates than before the war. It may be that the stagnation—amounting to a slight backward movement in the data for women—between the ages of 20 and 30 is a war effect; in any case it is not very serious. After four years of desolating war and a great pestilence, in an epoch of industrial crisis and general disillusionment, judged by the test of mortality, we stand better than at the end of an epoch of peace and prosperity. It may be that there is some illusion in this. Few men in middle life or beyond it can altogether escape the feeling that life as lived now in England has a touch of unreality. It seems hard to reconcile it with the economic facts. How can it be that the citizens of a country supporting a fantastic burden of taxation, with a million workers idle and restricted markets, still on the average maintain life at a higher standard of comfort and even of luxury than a generation ago? Are we living in the shadow of some great disaster? The medical analogy to this economic impression would be a doubt whether morbidity, not yet reflected by mortality, is so favourable. Since morbidity cannot be measured with the unambiguous precision that attaches to mortality, the point must remain speculative. But, without passing beyond the circle of ascertained experience of mortality, there are some features brought out by Sir Alfred Watson which are not agreeable. Of these undoubtedly the most impressive are the regional differences. The comparison of the county boroughs of Northumberland and Durham with all England and with the rural districts of the eastern counties is an example. For every 100 of the males who reach 60 by the Northumberland and Durham experience, 141·8 attain that age in the eastern counties. Nor is this wholly due to the unfavourable conditions of life in infancy in the northern towns, for it appears that for every 100 males aged 20 who reach 60 in Northumberland and Durham, 125·5 will do so in the eastern counties. This is not wholly an occupational difference, since the figures for women also offer a contrast; using the last test—viz., the proportion of survivors from 20 to 60—the county boroughs of the north show 100 survivors compared with 115 in the rural districts of the eastern counties. We may pass over this with the remark:

> O fortunatos nimium, sua si bona nôrint,
> Agricolas . . . .

but it is hard to believe that in this small country there ought to be so vast a disparity. Favourable as is our mortality experience on the whole, such contrasts as these—which, by restricting the areas, might be made still more striking—show that there is still much to be done before the worst districts or occupations are raised to the level of the best.

SEX AND INTERNAL SECRETIONS.

THERE are good reasons for believing that the primary sex of an individual is determined by the constitution of the chromosomes of the egg and spermatozoon from whose conjunction it originates. Cytologically the whole of a woman is female and the whole of a man is male. In some invertebrates it seems that sex is finally and irretrievably fixed in this way. But higher animals have evolved a mechanism which is at once more complicated and more labile. If a mammal develops normally, the nature of the chromosomes determines the growth of the appropriate sex gland, ovary or testis as the case may be, and it is the internal secretions of these glands which determine those bodily and mental qualities which for practical purposes decide to which sex anybody belongs. Removal of the sex glands neutralises the individual; eunuchs are not feminine but infantile, ovariotomy leads to loss of sex, not to maleness. We have thus a primary chromosomal sex (male or female) and a secondary gonadic sex (masculine or feminine), and experimental surgery has shown that higher animals have so far escaped from the influence of their sex chromosomes that the primary and secondary sexes of the same individual do not necessarily correspond. For it is possible to masculinise a female by substituting testicle for ovary and to feminise a castrated male by implantation of ovarian tissue. The predominance of the sex gland is thus clear. But it is not final, and it may be influenced and indeed overridden by other circumstances, and particularly by the products of other ductless glands. Experimentally there is a variety of evidence. Prof. F. A. E. Crew, for example, has shown that feeding young cockerels with thyroid leads to feminine feathering while thyroidectomy causes the feathers of female chicks to tend towards the masculine type. But the most striking instance of such an influence is afforded by human pathology in the tumours of the suprarenal cortex which are associated with sex changes. The few examples which have been found in males have occurred in children who have shown a general excess in growth and strength ("infant Hercules") and an extravagant precocity of external sexual development. Much more frequently these tumours have occurred in adult females in whom they lead to physical and psychical masculinisation. The realisation of the association, which we owe largely to Prof. E. E. Glynn, of Liverpool, has resulted in its recognition during life and in several instances to the happy removal of the tumour and a consequent restoration of femininity. The effects of operation appear to have made it quite certain that the tumours cause the masculinisation. They were described very clearly by Dr. Gordon Holmes and Mr. Percy Sargent in 1925 in a young woman of ample sexuality, and are brought out quite plainly in the case described by Dr. C. G. Murray and Mr. Graham Simpson in our present issue. In the other case, described by Mr. C. M. Kennedy and Dr. W. A. Lister, the patient unfortunately died before the results of operation could become manifest.

The explanation of this extraordinary phenomenon is very difficult. The tumours vary somewhat in detail; some are definitely malignant, some practically benign; some of slow, others of rapid growth. Histologically there is a general resemblance which in quite a number amounts almost to identity. There is little doubt that they all arise from the cortex of the suprarenal, and it is natural to suppose that they exert their influence by producing either an excess of the normal internal secretion of that organ or a secretion of abnormal kind. If the first alternative is correct, it ought to be possible to reproduce the condition experimentally, though we believe that the attempts to do this which have been made have so far failed. The second alternative recalls Prof. Glynn's remark that embryologically the suprarenal cortex is derived from the same source as the ovary and testis; it is possible that we have here a functional "reversion to embryonic type" familiar to the histologists. It is possible, too, that the adrenal sex effect is indirect through the medium, or with the coöperation, of the thyroid or pituitary. Polyglandular speculations are, however, premature. What is needed is the most careful and detailed investigation of such examples as may be discovered of the disease: in it medicine has made a most important contribution to the general biology of sex, and further study will no doubt illuminate much of what is at present obscure.

SILICOSIS IN DERBYSHIRE.

THE Derbyshire annual health report contains an interesting appendix on silicosis in the county by Dr. Patrick Hefferman, the tuberculosis officer. He defines silicosis as "a progressive fibrotic change in the lung tissue, due to the inhalation and deposition in the lung parenchyma of fine particles of silica, leading to the destruction of the functioning lung substance and its replacement by fibrous tissue. It is characterised, clinically, by steadily increasing dyspnœa, and by a tendency to develop and succumb rapidly to pulmonary tuberculosis in late middle life." Until quite recently the sharp spicules of silica were supposed to act by mechanical cutting effect. It is now established, he says, that the action is mainly a biochemical one, and that the silica particles, after being converted into a colloidal state, destroy the resistance of the lung tissue against the tubercle bacillus. Dr. Hefferman shows that the two most dangerous rocks in Derbyshire are the millstone grit and the ganister, both of which contain about 95 per cent. of free silica. Flint and chert are other rocks which consist chiefly of free silica and also concern Derbyshire industries. Chert, however, is only quarried in Derbyshire, and the greater part of the danger to workers is transferred to the potteries, where it is ground into fine powder. Flint from Northern France is used for the manufacture of white sanitary and table ware in the south of the county, and cases of silicosis due to this industry have been recorded at Burton dispensary. A fifth material dealt with in Dr. Hefferman's report is silica sand, which is found in pockets on the limestone plateau of West Derbyshire, and is used for brickmaking in the Bakewell district. Under the Workmen's Compensation (Silicosis) Act of 1918 the workmen in industries involving a risk of silicosis have to be examined annually and to be suspended from work and compensated if found to be suffering from silicosis or tuberculosis. Dr. Hefferman lays great stress on the paradox that "the grit-stone cutters, the traditional victims of the 'stonemason's disease,' remain outside the Silicosis Compensation Scheme, while the pocket silica sand brickmakers, with their low phthisis death-rate and their comparative freedom from silicosis, have been brought within the ambit of its provisions." The statistics collected by the late Dr. Sidney Barwise for the ten years 1901–10 demonstrate the very high death-rate from phthisis among the grit-stone workers. During the period 1910–20 there are indications of some improvement, although the mortality is still very high. On the other hand, Dr. Hefferman shows that, according to the popular belief, silica brickmaking is a healthy trade. In confirmation he has only been able to find one death of a silica brickmaker from phthisis during 1910–20 among 160 employed in the Bakewell district, whereas during the same period among about 350 grit-stone workers he found 19 deaths from phthisis, eight from pulmonary fibrosis, and one from hæmoptysis. His dispensary records have also shown that the cases of silicosis which occur among the brickmakers are nearly all in persons who have formerly worked as grit-stone dressers or quarrymen. The reason why pocket silica sand is less likely to cause silicosis than are grit-stone, ganister, flint, or chert is because each particle of silica is enveloped in a coat of clayey material. There are many suggestions as to how the clay acts as a

protection to the workers exposed to the dust, but one thing appears to be clear, that the presence of clay to the extent of 15 per cent. and of micacious matter to the extent of 7 per cent. reduce the amount of free silica in this sand to under 80 per cent.—the line of safety laid down by the Home Office. Dr. Hefferman suggests that more research is needed in this subject, and that if workmen cannot be protected from the inhalation of the dust, the treatment of the silicious material with a clayey substance may be useful. It is already recognised that the admixture of coal with the silica dust has a protective influence. We learn from the report itself that in 1925 the examination of workmen under the silicosis scheme was taken out of the hands of the tuberculosis officers and handed over to two whole-time medical officials specially appointed by the Home Office. Newly engaged workers, however, are still medically examined during the first month of their employment by the tuberculosis officers. The conditions of work and the nature of the dust in the atmosphere are also matters for the Home Office, whilst the occurrence of respiratory diseases, the clinical and radiographic records, and vital statistics are matters for the local health department and the Ministry of Health. Instead of getting nearer to the unification expected when the Ministry of Health was established, we seem in some ways to be getting further away from it.

ETHER CONVULSIONS.

THE occurrence of convulsions during the inhalation of ether was brought into prominence by an article contributed a few months ago to our columns[1] by Dr. S. R. Wilson, of Manchester, whose subsequent tragic death, while experimenting on himself with anæsthetics, has lent an added interest to the problems which he stated, although, it has also sensibly diminished the chances of bringing them to a definite solution. Convulsive muscular contractions during anæsthesia may be of various kinds, and before we can hope to determine the cause of the phenomenon in cases such as those cited by Wilson we must clear the ground by ruling out the categories of convulsion to which these almost certainly did not belong. Broadly speaking, there may appear in a subject under ether narcosis (1) fine tremors; (2) clonic contractions associated with alterations or peculiarities of position, common, for example, when the patient is quickly put into the lithotomy position; (3) convulsive movements associated with slight or with severe anoxæmic states. These are often most marked in the muscles of the face when the anoxæmia is slight, but they may violently affect the limb muscles as well as those of the trunk. When we are dealing with the observations of so experienced an anæsthetist as Wilson we may assume that the convulsions he described belonged to none of the three kinds just enumerated. If so this would rule out the explanation put forward[2] by Dr. J. T. Gwathmey, that the convulsions were the result of perivascular œdema and the accumulation of œdematous fluid in the alveoli of patients in whom ether has been administered without previous medication. The converse suggestion[3] made by Dr. R. W. Hornabrook, of Melbourne, that the convulsions were due to overdosage with atropine is rendered unlikely by the very large experience of preliminary atropine dosage without untoward event quoted[4] by Dr. H. Sington. In the same journal appears a letter from Mr. H. E. G. Boyle which bears upon the explanation maintained by Wilson himself; Wilson believed that the convulsions he described were due to impurities in the ether. Moreover, he showed how certain modern methods of using ether were prone to the formation of impurities in ether originally pure. Now comes Mr. Boyle's corroborative evidence that aldehydes and peroxides can be formed in good ether when nitrous oxide or oxygen or both are bubbled through it. It is to be noted, however, that the passage must continue for an hour or so and that the percentages of peroxide and of aldehyde found never exceeded 1 in 50,000 and 1 in 80,000 respectively. Wesley Bourne has shown experimentally that even ½ per cent. of aldehyde produces only an insignificant effect, although inhaled for as long as three hours, and that with peroxides the percentage must reach something like 0·5 per cent. for effects to be anything but negligible. If, therefore, we are to accept Wilson's explanation we must assume that the impurities reached a remarkably high degree, or else that the condition of the patients rendered them unusually susceptible to the action of the impurities present. It is noteworthy that the patients whose fatal cases were related by Wilson were all the subjects of acute septic disturbance. This does not apply, however, to examples brought forward by other observers, or to the milder instances in Wilson's experience. We cannot, in fact, declare that the occurrence of convulsions during ether anæsthesia, not occasioned by anoxæmia and terminating fatally, is as yet satisfactorily accounted for. It is obvious, however, that to use pure ether and to keep it pure is a measure of safety, and it is something to have arrived at this certainty and to have disposed of the mistaken advocacy of certain impurities in ether which was rife only a few years ago.

[1] THE LANCET, 1927, i., 1117.
[2] Ibid., p. 1369.
[3] Brit. Med. Jour., Sept. 10th, p. 471.
[4] Ibid., Sept. 24th, p. 566.

URINARY NEUROSES.

IN a lecture published in *Medizinische Klinik* of Sept. 9th, Dr. J. J. Stutzin (Berlin) declares that a neurosis as such has nothing in common with a disease of the neuron or nerve. To obtain insight into the meaning and cause of the neurosis he takes the conception of an unresolved conflict with a consequent flight into illness, a conception which assumes the validity of certain psycho-analytical generalisations. With regard to organ-neuroses, he asks whether there is a specificity, by which a conflict of a certain kind finds expression in a certain organ, or whether the incidence of the neurosis is a matter of chance. He answers that anxiety, for example, tends to show itself in the form of increased peristalsis—he might have added in the form of palpitation and tachycardia—whilst disgust appears as vomiting; but repeated treatment of an organ can "neurotise" it, and in some personalities a specific organ-neurosis can be masked by the general neurosis or the neurosis can pass from one organ to another. Stomach, bowel, and heart neuroses are commonly described, but kidney neuroses find little mention, though Stutzin gives a few references to experiments showing the influence of emotion upon urinary secretion and describes a case, tentatively diagnosed as renal stone, in which an emotional state during cystoscopic examination was accompanied by painful acceleration of ureteric action which disappeared when the patient was pacified and engaged in conversation. The symptoms were judged to be psychogenic and treatment by psychotherapy proved successful. Among other cases described is one in which the patient had been operated upon for suspected renal stone, then for suspected gall-stone, and only when he demanded appendicectomy was he examined "neurologically" and found to be a psychoneurotic repressed subject who unconsciously sought a pleasure-equivalent in operations. Bladder incontinence or retention, originally neurotic, may be converted into cystitis by instrumental interference, and, on the other hand, post-gonorrhœal symptoms of disabling severity with associated suicidal ideas were abolished by an exploratory puncture of the testicle and the incision of a subsequent scrotal hæmatoma. This unexpected therapeutic success was excelled in the case of a man of 60, diabetic and with severe myocarditis, upon whom Steinach's rejuvenation operation was attempted under local anæsthesia. The incision of the skin caused such a severe shock that the operation was abandoned, but the failure was followed by a return of sexual vigour and enterprise, of an erect poise and

brisk gait, whilst after some weeks the man declared that his hair had become black; his wife endured a plastic operation upon the face in order to keep level with him.

Dr. Stutzin's paper draws together a number of clinical observations that can be paralleled in the experience of many genito-urinary surgeons, and he does good service in directing attention to the existence of these neuroses, which are so liable to pass unsuspected. A reference to the departed vogue of operation upon movable kidneys in neurotic patients would have added historical interest and pointed a moral. Taking a general view, he concludes by noting that we are turning aside from our over-estimation of laboratory results, but that much remains to be done before we shall be in a position to treat neurotic patients systematically, whether by suggestion or analysis.

THE CLINICAL USE OF IRRADIATED ERGOSTEROL.

WE have recently [1] commented on the discovery that irradiation of ergosterol provides vitamin D in a state of high concentration. This discovery has already been applied in clinical practice, and the *Deutsche Medizinische Wochenschrift* of Sept. 9th contains an interesting group of papers on the use of irradiated ergosterol in the treatment of rickets, late rickets, and osteomalacia. In most cases the dose given daily was from 2–4 mg., following the example of P. György[2] and of H. Beumer and C. Falkenheim,[3] but in one case as much as 10 mg. was given without any detrimental result. O. Rosenheim and T. A. Webster[4] point out that in the rat it does no harm to give a dose many times greater than the minimal effective dose, and this is evidently true for human beings, since calculating roughly by body-weight, compared with a rat, a dose of 2–3 mg. should be some hundreds of times larger than the minimal dose needed for an infant. The ergosterol was usually administered as a solution in olive oil, but cocoa-butter pastilles and sugar-coated tablets also gave satisfactory results. A. Hottinger reports that he cured a child under one year with 1 mg. daily, and children over a year with 2–3 mg. He also cured a young man with late rickets and a woman of 35 with recent osteomalacia with 3 mg., and two older women with severe long-standing osteomalacia with 5 mg. daily. C. Falkenheim had remarkable success with doses of 3–5 mg. in treating rickety children with severe complications such as broncho-pneumonia. He received the impression that the prognosis of the complications was greatly improved when the rickets was thus treated. He found X ray evidence of bone healing, even when the level of calcium and phosphorus in the serum remained unaltered as a result, he considered, of the complicating illness. W. Lasch and A. Behrens state that they cured rickets in five infants—which had developed the disease before their eyes in their own infants' home—with daily doses of 3–4 mg. of irradiated ergosterol. They think that the substance has a great future as a prophylactic, as its use obviates the loss of the mother's time involved in bringing her child for direct irradiation with ultra-violet light, whilst it has not the nauseating qualities attributed to cod-liver oil. W. Starlinger describes a striking cure, with 10 mg. daily, of a woman with osteomalacia. After three attacks in successful pregnancies she had become a complete invalid after the fourth pregnancy, and since 1919 had only been able to walk with the greatest difficulty. She had received a variety of treatment, including removal of the ovaries. After 12 days' treatment with irradiated ergosterol she suddenly began to improve, and after 20 days began to walk and progressed steadily thereafter. This group of papers is a useful instalment of clinical experience from Germany and Switzerland, and goes some way to demonstrate that irradiated ergosterol is as reliable an antirachitic agent as ultra-violet light or cod-liver oil, and in many ways a more convenient one.

[1] THE LANCET, Sept. 17th, p. 619.
[2] Klinische Wochenschrift, 1927, No. 13.
[3] Ibid., No. 17.
[4] THE LANCET, Sept. 17th, p. 622.

THE WEARING OF A TRUSS.

IN another column a correspondent, who signs himself "Senex," writes of the sorrows of the wearer of an imperfectly fitting truss. From the wealth of his own experience he talks quite frankly of the failure of the appliances provided to effect their object, due in his opinion to the lack of coöperation between surgeon and mechanician, and he comments on the lack of any hospital for hernia even in London and of the non-existence of surgeons specialising in the mechanics of the truss. There is, we must admit, more than a modicum of truth in our correspondent's criticism. Certainly at the City of London Truss Society the surgeons in charge personally fit the truss, of whose construction they have a real and intimate knowledge, but it is doubtful whether at the majority of medical schools even in London there is any consistent and definite teaching of the principles of truss-fitting, and in the case of the surgical aid societies it is the practice of the surgical staff simply to send their patients on to an instrument maker. The position is, in fact, analogous to that of the fitting of artificial limbs where, except at Roehampton, the instrument maker is in charge. At Roehampton, of course, it is the special limb-fitting surgeon who prescribes the limb, sees to its fitting at the various stages, and passes it when finished, with the result that nowhere in the world has limb-fitting reached such a high level. The time has probably come when the University of London might be asked to have a series of lecture-demonstrations on limb-fitting by the Roehampton staff. It seems clear that the principles of truss-construction and truss-fitting should be taught in every medical school, and if the demand should arise for a definite course of instruction on the part of newly qualified practitioners, no doubt the surgical staff at the Truss Society would be glad to arrange for post-graduate instruction. The matter is evidently worthy of closer study by educational authorities.

THE TAPEWORM'S HEAD.

THE treatment of tapeworm is useless if the head of the worm is not expelled. The starvation and purgation involved are exhausting to the patient, and if the first few attempts fail he is likely to continue his hospitality indefinitely rather than submit to further efforts to expel his guest. It is important, therefore, to get rid of the head at the first attempt. In a recent paper [1] Dr. T. B. Magath and Dr. P. W. Brown discuss the difficulties of treating tapeworm successfully, and describe a routine which they have found successful. The patient should not take dinner or supper the day before treatment, but black coffee, tea, and water may be drunk freely. At 6 P.M. and again at 6 A.M. 15–30 g. of magnesium sulphate are given. No breakfast is allowed, but after the bowels have been opened 30 c.cm. of the following emulsion is administered: oleoresin of aspidium, 6 c.cm.; powdered acacia, 8 g.; distilled water to make 60 c.cm. One hour later a second dose of 30 c.cm. is given. After two hours 30 g. of magnesium sulphate are again given, and two hours later a large soap-and-water enema. The patient then passes a stool which is sent straight for examination. The top watery part may be poured off and the rest is passed through a sieve with a 20-mesh bottom. The contents of the sieve, which are now chiefly worm, are emptied into a flat enamel pan, the bottom of which has been painted black, and the head is looked for. As a result of this treatment the head was recovered in 10 out of 19 cases at the first attempt, and in two others at the second. The seven failures were due to patients vomiting the drug or to contamination of the stool with food débris.

[1] Jour. Amer. Med. Assoc., May 14th, p. 1548.

In particular, it is stated, fruit should be avoided before the treatment. If the drug is vomited it may be given by a stomach-tube. Castor oil must not be given as a purgative, for aspidium is soluble in it and is then highly toxic. This routine, in the authors' hands, certainly seems to give more successful results than those usually obtained. They point out that to give an enema at the end is extremely important, for often when the worm is dislodged the head breaks off and passes into the colon, where it remains unless swept out by a large enema.

EXTRAMEDULLARY BLOOD-FORMATION.

ANÆMIA is very common in infancy, partly because an infant's blood is especially vulnerable to the toxins of such diseases as gastro-enteritis, rickets, and syphilis, and partly because children have a relatively small reserve power of blood regeneration. Their tissues have not only to produce blood for the support of the organism, but also for its growth. Any extra strain upon them is shown by the appearance in the blood of embryonic cells which in the adult would be seen only in very severe stimulation or disease of the bone-marrow, and this makes the anæmias of infancy more difficult to classify than those of later life. For some time after birth, although the bone-marrow is the chief blood-forming organ, other tissues have considerable power of reverting to their fœtal power of blood-formation when called upon to do so. In the August number of the *Bulletin* of Johns Hopkins Hospital Dr. Dorsey Brannan discusses this question of extramedullary hæmatopoiesis and quotes many cases from the literature described under the names of von Jaksch's anæmia, pseudoleukæmia infantum, splenic anæmia, and pernicious anæmia of infants, in which autopsy revealed tumour-like growths of hæmatopoietic tissue outside the bone-marrow. In a case under his own observation the child was 7 months old and had a large liver and spleen associated with rickets and malnutrition. The blood showed anæmia of a secondary type with a great number of normoblasts and early myeloid cells, together with a few megaloblasts. Post mortem he found red tumour-like growths filling the hiluses of the kidneys and abundant red tissue covering the falx cerebri, these growths being composed of all the elements of hyperplastic bone-marrow with a great preponderance of erythrocytic cells. There was similar tissue in the thymus and lymph nodes, but the spleen and liver, both large and fibrosed, showed little evidence of blood-formation. Dr. Brannan also describes foci of blood-forming tissue in the broad ligaments and breasts of other children not suffering from anæmia, and a case of severe anæmia secondary to uterine sepsis and hæmorrhage in a woman of 27, in which evidence of extramedullary blood-formation was found in the liver, spleen, and broad ligaments. He considers that such growths of hæmatopoietic tissue are fairly common in some of the anæmias of infancy, and that they are the result of compensatory stimulation. They occur most often in the hilus of the kidney, but also in the broad ligament and in the breast.

WE regret to announce the death on Oct. 4th of Mr. Henry Brunton Angus, Emeritus Professor of Surgery in the Newcastle College of Medicine, University of Durham.

THE personal friends and colleagues of the late Prof. Adrian Stokes have decided to establish a permanent memorial to him. Its precise character will depend upon the funds which become available, but the object will be to endow medical research in some way. His personal friends are convinced that the establishment of a Stokes Memorial Fellowship or Studentship is the only type of memorial of which he would himself have approved. The funds will be controlled by Guy's Hospital Medical School, and subscriptions should be sent to the Dean.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

CCXLIV.—THE TREATMENT OF INSOMNIA.[1]

II.—THERAPEUTIC MEASURES.

1. *Physiogenic Insomnia.*

THE treatment of insomnia dependent upon definite physical disorder is, in general, that of the associated disease, and most of the conditions are outside the scope of this communication. Continued pain, however, due to neuritis or neuralgia and resulting in protracted insomnia in unstable individuals may, if unrelieved, lead to a psychoneurosis or even a psychosis. Cases are not uncommon where the organic disorder having ceased to exist, both the pain and insomnia persist as hysterical manifestations. In the sleeplessness caused by definite pain analgesic drugs are indicated, such as acetyl-salicylic acid (5–15 gr.), pyramidon (4–8 gr.), veramon (2–3 tablets), novalgin (7½–15 gr.), or dialacetin (½–2 tablets); the latter is a most useful drug for pain combined with insomnia. If the pain is of a severe and temporary character morphine or the total alkaloid preparations, opoidine (⅓ gr.) or omnopon (up to ¼ gr.), may be indicated.

In all patients who complain only of sleeplessness, in whom no obvious physical cause can be found, it is as well for the practitioner to make quite sure at the outset that the symptom is not one of physiogenic origin. Dyspepsia and constipation as causes of insomnia may easily be overlooked; flatulence especially is liable to lead to delayed sleep. It is often worth while to try the effect of a carminative draught taken at bedtime. Minor circulatory disturbances—e.g., cold feet—may also be missed. In cases of high blood pressure the treatment is largely that of arterio-sclerosis—dietetic measures, moderate exercise, saline purgatives, and iodides. A dose of nitroglycerine at night is often helpful.

2. *Psychogenic Insomnia.*

Where the cause of the sleeplessness is of psychical origin the practitioner's first step, as already stated, is to ascertain all possible causes of mental discomfort—anxieties, &c. Elucidation of the mental factors, however, may take a considerable time, and prolonged psychological investigation and even psycho-analysis may be necessary; in the meantime the patient needs sleep. Much help can be given by trying to persuade him to adopt the right mental attitude to his symptom. Those who suffer from insomnia almost always exaggerate in their own minds the severe consequences of not sleeping adequately, a fact which adds considerably to their anxiety. The physician should point out to the patient that there is no fear of his losing his reason or dying as a result of his sleeplessness, that a smaller amount of sleep than most people take is quite compatible with health, and that rest in bed with muscular relaxation is to a certain extent a substitute for sleep. A correct mental attitude will assist greatly in relieving an anxiety state and combating insomnia; delayed sleep is often kept up by worry concerning it, the patient going to bed anticipating and dreading that he will not fall asleep. On the other hand, it is useless for him to try to make desperate efforts to go to sleep; as far as possible he should retire to bed in a tranquil state of mind, believing that sleep will come. Failing this, if he can be persuaded to show indifference to sleep, the insomnia will sometimes disappear.

In the subject of insomnia every effort must be made to raise the level of the general health by

[1] The first section of this article—General Considerations—appeared in last week's issue.

suitable feeding, warmth, and judicious exercise; the tendency to undue fatigue must be counteracted by a reduction of the daytime activities and the taking of short periods of rest, especially after meals. Cerebral excitants, such as coffee and tea, are best avoided in the latter part of the day. As sleep in many individuals is largely a question of habit, the patient should retire to bed at a regular hour each night and should avoid close mental work during the evening, or if this is impossible, he should take a short walk before bedtime. A warm bath promotes sleep in some cases, but has the reverse effect in others; it is, however, worthy of trial. In those who suffer from cold feet, a hot mustard foot-bath at bedtime is often helpful. It is unwise to go to bed on an entirely empty stomach, since it is generally accepted by physiologists that cerebral anæmia plays some part in the mechanism of sleep. A meal tends to produce drowsiness, blood being required in the splanchnic area for purposes of digestion, and this leads to a corresponding diminution in cerebral vascularity (compare the desire of most animals to sleep following a meal). For this purpose it is advisable to take warm soup, bovril, or cocoa with dry biscuits half an hour before bedtime.

The patient should have a bedroom to himself, which must be dark, quiet, and well ventilated. All clocks must be removed and the light turned off; if, however, the latter is impossible owing to the patient's apprehension, the light must be subdued by shading. A spring mattress is usually best, but much depends on that to which the patient has been accustomed. The bedclothes should not exceed the minimum quantity required for comfortable warmth, and in those sensitive to cold the bed must be warmed with hot-water bottles after a through airing in the daytime. As regards posture, it is generally preferable to try to sleep on the right side; in this position pressure by the liver on the stomach is avoided and it is easier for the latter organ to empty. The height of the pillow will depend largely upon the patient's habit, but in cases of increased blood pressure a high pillow is desirable.

Reading in bed sometimes promotes sleep, and some individuals habitually read until drowsiness compels them to extinguish the light. Unless the patient is accustomed to "read himself to sleep," it is best not to introduce the suggestion in case a habit of wakefulness be established.

Education in complete muscular relaxation is sometimes valuable. The faculty of muscular relaxation can be so developed that the patient is able to relax all muscles upon getting into bed, a habit that greatly favours the onset of sleep. General massage, with special attention to the spinal muscles, carried out shortly before the usual hour of sleep, is of great assistance, especially in cases of neurasthenia.

As regards alcohol, much again depends upon the patient's habits and how he reacts to alcohol. Stout or a glass of hot whisky and water at night will induce sleep in many individuals when everything else has failed; in others, however, it has but a temporary effect and may even cause wakefulness.

As suggestion—the hour of day, undressing, and the accustomed bedroom—probably plays a considerable part in the production of sleep in adults, it is generally best to try to treat insomnia in the patient's own home. In cases of long standing, however, a change of environment is usually desirable. The bedroom and surroundings may have lost their suggestive effect, and far from inviting sleep, actually repel it by the association of continuous nights of wakefulness. In the extremely rare cases of insomnia due to overwork in the absence of associated worry, or in which the anxiety is of a superficial character, a holiday may speedily effect a cure.

Hypnosis has often been advocated in the treatment of insomnia. In the writer's experience neither simple suggestion without hypnosis nor post-hypnotic suggestion is very satisfactory. In suggestible subjects a temporarily good result may sometimes be obtained, but even such cases quickly relapse in the absence of more radical treatment. In other cases no effect is observed.

Cases in which the sleeplessness is of long standing and has resisted the simpler methods of treatment described, as well as those in which the symptom amounts almost to an obsession, will usually require deeper and more prolonged psychological investigation—psycho-analysis or one of its modifications—to obtain a satisfactory result. In such cases the younger the subject the better the prognosis, while after middle age psycho-analytical methods are unlikely to benefit.

It is almost needless to state that it is far better to treat the cause of insomnia rather than the symptom of insomnia itself. In psychogenic cases, however, this may occupy a considerable period, and in the meantime, pending the result of psycho-therapeutic and other measures, the patient must have sleep. Although the routine use of hypnotics is indicated only in exceptional cases, it is unjustifiable to withhold such sedatives owing to the often groundless fear of habit-formation on the part of the patient; the insomnia, indeed, is far more likely to become a fixed habit and the patient is usually only too glad to discard the hypnotic. Also, in many cases, if sleep be induced even by artificial means, a definite psychosis may be averted.

Hypnotics.

In prescribing a hypnotic one cannot afford to fail, since the patient may be left in a worse condition than before; consequently, it is wise to begin with a substance and a dose a little stronger than is really necessary. In mild cases simple bromides or "sedobrol" may be used, but the bromide-urea compounds—bromural (5–10 gr.) and adalin (10–15 gr.)—or dial (1½–3 gr.) are often more efficacious; the latter is very safe and sure and has no unpleasant after-effects. Of more potent sedatives, the veronal group — especially medinal (sodium-veronal) in 7–10 gr. doses—are very satisfactory; it has been shown that these drugs in *therapeutic* doses have no toxic effect upon metabolism and no cumulative action. Paraldehyde is too unpleasant for general use, but is helpful in alcoholic cases and in pneumonia, while chloralamide is too uncertain in its time of action. On account of its delayed effect trional (10–20 gr.) is indicated in internocturnal insomnia, in which the patient is awake only in the latter part of the night. Sulphonal (10–30 gr.) suits some individuals, but is generally inferior to veronal and medinal, while luminal in hypnotic doses is undesirable. Morphine should not be used in insomnia of psychogenic origin outside a mental hospital. In practice it is usually best not to continue a hypnotic longer than two or three weeks without an attempt at a gradual reduction in the dose employed. In the later stages, with the patient improving, the sedative may be varied from time to time, with a slight reduction in dosage on each occasion a hypnotic previously used is again prescribed. A hypnotic by the bedside of the patient to take if necessary is often successful and he may sleep night after night without needing it.

In the acute psychoses of which sleeplessness is so common a symptom, the use of powerful sedatives (the so-called "chemical restraint") is becoming regarded with increasing disfavour. Endeavours are being more and more directed towards assisting nature to bring about relief by careful nursing and general treatment—attention to the digestive and excretory functions, frequent baths, and the administration of alkalis. Attempts to promote sleep are also made by warm sponging, hot packs, and continuous baths. Hypnotics, nevertheless, are often necessary but should be used judiciously and as sparingly as possible.

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Opening of the Medical Schools.

THE MEANING AND METHODS OF SUCCESS.

An Address (Abridged) delivered to Students of St. George's Hospital on Oct. 1st, 1927,

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EVERYONE at some time or another must ask himself the questions whether or not and how he can attain success; these problems, though visualised, should not weigh too heavily or constantly on the mind, for sufficient to the day is the burden thereof, and if this is well borne the future may be trusted to look after itself. No one, however confident or diffident, can tell what is in store for him or command success, but he can do better by deserving it. The vagaries of blind fortune, the chances of injury and illness, and more particularly the student's character still in process of formation, as much or more than ability and industry, are in the main the determining factors.

The average student is usually too busy with hard work and healthy play to think much beyond the goal of passing his examinations so as to be able to earn a living, or, if an old-fashioned hero-worshipper and vaguely ambitious, of following in the steps of a teacher; it is therefore perhaps not surprising if he seldom stops to analyse solemnly what exactly constitutes success. Yet surely it is desirable for his present guidance to formulate some conception of his ideal of a medical life.

Estimates of success have been made by Sir James Paget (1869), Sir Squire Sprigge (1906), and Mr. E. Corner (1920) on the basis of the only available material data—namely, attaining certain positions in hospital and private practice. These statistics brought out at different times are satisfactory, for they show that on an average 75 per cent. of medical students qualify, and that of those who start in practice 66 per cent. have reason to feel justified with their choice. But apart from freedom from anxiety about the means necessary to provide for dependents and to live in fair comfort, what are the essentials of a right conception of success in medical life?

Forms of Success.

There are many kinds of what may be called success—the fashionable and financial, the intra-professional, the scientific and intellectual, and the humanitarian. The obvious hall-marks of success in the popular view are, of course, a large income and a title; in all walks of life these certainly point to achievement and must not be gainsaid or their value minimised. But they may be and often are due more to commercial astuteness than to those finer qualities of sympathetic imagination and unselfish wisdom which go to make up the character of the ideal healer. It must not, however, be assumed that the combination of the best success is incompatible with, or so often divorced from, the financial as those without experience of either may believe.

Another and a potentially wider conception of success is to get what you want, be that what it may—riches, fame, affection, troops of friends, so that all men speak well of you. But as this, like the previous form of vaulting ambition, may in George Moore's words, become

> "Like Dead Sea fruits, that tempt the eye
> But turn to ashes on the lips,"

and, bearing in mind Oscar Wilde's epigram that "there are two great tragedies in life, not getting what you want—and getting it," the definition should be expanded into that given by Osler, "getting what you want and being satisfied with it." Many agree with Robert Louis Stevenson that "To travel hopefully is better than to arrive, and the true success is in labour."

A high ideal is to make some great discovery or reform that permanently benefits mankind, to relieve, or preferably prevent, human suffering, and so to leave the world better than it was before. Some of these original investigators, inventors, and reformers have not been properly recognised during their lifetime and so, because the world was not then ready for them, must have appeared to be failures, but—

> "Not all who seem to fail have failed indeed,
> Not all who fail have therefore worked in vain,
> For all our acts to many issues lead."
> —*M. I. Fortescue-Brickdale.*

This most enviable ability for original discovery is given to few, but there is another form of success within the reach of ordinary mortals, not indeed as the outside world understands and uses the word, but from the individual's own point of view: it is to preserve your own peace of mind and respect by the consciousness of honest work well done, and duty carried out without fear or favour, in making others better and happier in body and mind, and by freedom from discomfort and regrets for any action mean and contrary to the golden rule to "do unto others as you would they should do unto you."

Methods of Attaining Success.

To follow the wrong profession is a tragedy and a sure bid for unhappiness and failure. But when what seems to be the right choice has been made, what are the further essentials? Obviously to start with, as in other professions, a thorough knowledge of the science and art—the two Janus-like faces—of medicine; and not only this, but to remain throughout life students, ever on the look-out to observe and learn, for there is no trace of finality about medicine, especially in these days.

Mental ability alone is not sufficient, though it goes a considerable way towards professional success. "A physician," said Osler, "may possess the science of Harvey and the art of Sydenham, and yet there may be lacking in him those finer qualities of heart and head which count for so much in life." Peter Mere Latham, one of the great clinical physicians a century ago, when our science and art were infinitely less detailed and specialised than now, wrote:—

> "Knowledge may be an incumbrance as well as a help. Many men know more than they are able to wield. There is a point (I believe) in the acquisition of knowledge (and this point varies infinitely in different individuals) beyond which, if more be acquired, the whole mass becomes useless to its possessor. I am acquainted with men who never have *done*, and never can do anything, because they know too much; and I am acquainted with men possessing comparatively small knowledge, so dexterous in its use that they have ridden over the heads of others far, very far, their superiors in acquirements."

Though reading maketh a full man, too much may induce mental dyspepsia, breed excessive obedience to authority, and so destroy any originality and independent thought. Read we should, but let it be methodical, with discretion, and accompanied by critical analysis and digestion, so that the state of the stuffed Strasbourg goose be not the result. As a practical method of analysis, a written abstract made at the time serves a double purpose; not only does it impress the details on the tablets of the mind much more effectively than mechanically underlining the book when sitting in an easy chair, but is most useful for future revision. It is a common mistake to measure the amount of work by the clock; the real criterion is not the number of hours spent, but the degree of concentration brought to bear on the subject. Concentration produces the greatest effect in the minimum time and is the economical secret of the successful and busy man.

There are in addition other factors to be considered, especially a knowledge of men and womenkind which is so important in the treatment of the sick. Though, like most epigrams, that to the effect that "one-quarter of savoir and three-quarters of savoir-faire make the successful practitioner" may be an exaggeration

there can be no doubt of the value of the personal equation in gaining the confidence of patients, their relations, and professional brethren. A man should, of course, have the requisite professional knowledge, but he must be able to make full use of his acquirements. This necessary personality is not shown by a bedside manner with a suggestion of pompous superiority; it is the result of getting inside the patients' minds so as to think their thoughts, feel their feelings, and thus understand their mentality and anxieties so thoroughly that the medical man is obviously their friend with their interests so entirely at heart that nothing else counts. This is not an actor's mask, but the outward and visible expression of true charity and forgetfulness of self. I would like to subscribe to the following from an address given by my father in 1874, when distributing the prizes at St. Mary's Hospital Medical School:—

"I believe that the rule 'put yourself in his place,' based on what modern philosophers call the principle of altruism, but what is found expressed plainly enough in much older language than theirs, is the rule which, if I were confined to the choice of one single guiding maxim to be given to a young doctor just entering upon the responsibilities of practice, I should choose for that maxim. Sympathy is truly called a divine gift, and it does assuredly give a superhuman power. I presuppose, of course, patience in investigation and carefulness in ratiocination; but such is often the obscurity, intricacy, and complexity of a medical problem, that in the ultimate resort, it is upon intuition rather than upon syllogism that its true solution depends. It is to the man who has the touch of genius, that strength of imagination, which enables him to put himself in the patient's place and thus do full justice to him that there 'ariseth up light in the darkness.' It is for want of all this that 'great men are not always wise.'"

The faculty of inspiring confidence, like the love of children and dogs, may be inborn, for there undoubtedly are men highly esteemed and of acknowledged ability but whom none of their friends think of employing professionally. A want of appreciation of his patients' state of mind, which is naturally focused on their ailments, may allow the doctor to discourse on his hobbies and private interests; whereas from his patients' point of view his raison d'être is solely to discuss their urgent needs. No doubt attempts to distract them from themselves have their place and value, but the time for this is after, not before, a full, often it must be admitted tedious, hearing and consideration of their troubles so as to unburden their minds and ensure complete satisfaction. In doing this there must be calmness without coldness, decision without dour dogmatism, friendliness but firmness. It may be difficult to steer between saying too little and talking too much, and while avoiding garrulousness there is the temptation to imitate those who by a sententious or somewhat cryptic phrase get out of a difficult situation for the time, but seldom satisfy their patients' wants. Honesty and truth are essential, but what may at the time seem the whole truth should not always, in the light of human fallibility and his best interests, be communicated to the patient. In making mistakes, as inevitably all must do, it is always better to err on the side of optimism than of pessimism. It was said of the late Sir William Osler that "he never left a sick-room without leaving behind renewed hope."

Relations with other medical men, popularly spoken of by the layman as medical etiquette or ethics, with a thinly disguised dislike and a suspicion of a mysterious trade-unionism, are in reality a very simple matter—obedience to the golden rule of treating other colleagues as we would wish them to treat us. In carrying out this elementary principle there is nothing more obvious than total abstinence from adverse criticism of other medical men. Before judging of what another medical man is reported to have done or said it is instructive to bear in mind how rumour may transform your own actions and remarks out of all recognition.

Importance of Good Health.

Almost as important as common sense and a sympathetic and healthy mind are good health and physique to withstand the strain of hard, continuous work. Doctors should not only advise, but in their own interests set a practical example in personal hygiene, proper recreation, exercise, and holidays in spite of the numerous difficulties that surround them. From insomnia, headaches, and dyspepsia born of irregular and hasty meals a man may become angular, forgetful, and deficient in the qualities which make for his success with trying patients. On the other hand, great things have been accomplished by medical men crippled or physically handicapped in one way or another; incapacity in one respect may, by compensation and concentration, result in a high degree of excellence in another direction.

Terence's line, *Homo sum; humani nihil a me alienum puto*, applies most certainly to our humanitarian calling; but although wide culture, literary activities, and hobbies are good for the soul, these are for private use and not for parade. There is widespread belief, often no doubt erroneous, that a man cannot excel in more than one line, and so when a doctor is known, for example, as a writer of verses, most people are inclined to consider him too good a poet to be their common-sense guide, philosopher, and friend in unromantic medical matters.

THE DOCTOR'S HIGH CALLING.

Being part of an Address to Students of the London School of Medicine for Women on Oct. 3rd, 1927,

BY R. G. HOGARTH, C.B.E., LL.D., F.R.C.S.,
LATE PRESIDENT OF THE BRITISH MEDICAL ASSOCIATION.

AN exclusively scientific training often leaves something to be desired in the way of mellowness and ripeness, and the professional man or woman of to-day suffers serious handicap unless his or her mind is well cultured, well garnished and sensitive to the impression of what the Greeks called "the beautiful." Energies should not be dispersed too widely, but narrowness must be avoided at all hazards. Medical text-books contain the rather arid knowledge indispensable for the satisfaction of examiners, but they are markedly deficient in the attractive graces, the freshness and the inspiration to be found in the best poets, essayists, and novelists. It is not enough for the woman doctor to be distinguished in the street by her spectacles, by her shoes, or by the attaché case in which she carries her instruments. Apart from her professional skill, she should be known by her culture, by her judgment and discernment, by her greater detachment from the idols of the market-place, and by that sure way of approaching a question at issue which is the hall-mark of the trained and balanced mind.

This is a golden moment at which to begin the study of medicine. The only time, perhaps, when the prospects of those entering the profession in the spirit of scientific adventure or with a real enthusiasm for the welfare of their fellows were in any degree comparable with the present, was in the early days of Greek culture, when Hippocrates first disentangled medicine from priestcraft. Medical science was then launched under the fairest auspices and with the brightest hopes, and mankind never suffered a more grievous calamity than when it drifted into the shoals and quicksands from which it was only effectually rescued in recent times. Medicine returning once more to Nature, rejecting all methods save that of observation, and all interpretation save that of strict causation by natural causes, has now gloriously renewed itself. Sure of its direction, it looks forward with great confidence to an ultimate control of disease. The profession, moreover, possesses to a degree hitherto unknown, the general confidence of mankind. Men and women in all ages have run with anxious faces to the doctor in the hour of trouble; yet the keener wits were never deceived by the professional cloak of mystery with which he shrouded himself. The reason of the present marked change

from credulous incredulity to implicit confidence is to be found in two words—scientific method. The temple of healing has been rebuilt from its foundations. The fountains of pure water have been cleared from the rubbish of centuries, and through its porticos and halls blows the fresh clean air of free inquiry. Scientists have indeed been driven to invent a jargon of their own, because they need such a bewildering multitude of new words with exact and precise meaning. But there is still only one set of scientific principles, and even in the labyrinthine complexity of modern medicine there is a grand and austere simplicity. The world may be able to afford the luxury of several religions; it can only afford one science of medicine.

This is the age of scientific adventure, but we are not all discoverers, and in medicine, as in other professions, the majority belong to the rank and file, who do the everyday mending and patching of common humanity. A vast routine of ailment, slight and serious, runs with the sun its appointed course. Men and women obstinately continue to transgress the laws of health and, in spite of daily articles on diet, there need be no apprehensions of any lack of patients. It is told of old Dr. Abernethy, that on entering his lecture room on an occasion like the present and observing a large influx of new students, he threw up his hands and said: "Good God! what is to become of you all?" And even to-day the pessimists lament that there are not enough good jobs to go round. But such dismal forebodings should not be allowed to depress natural enthusiasm. In no profession, I believe, is there so high a percentage of those who make a fair success out of their practice. Some 60 years ago Sir James Paget estimated that of those who actually reached practice, 36 per cent. made a very fair success of it, meaning by that that they were able to maintain themselves as professional men in adequate style. I feel sure that the percentage has risen of recent years, and in a specially marked degree as a direct result of the National Health Insurance Act which has proved a very good friend to the general practitioner. The State to-day not merely recognises but earnestly realises its direct responsibility for the health of the people, and association of the profession with the State will increase and not diminish, opening out an ever-widening horizon of honourable and profitable employment.

No doubt the majority of you will join, not the noble army of martyrs to the cause of pure science, but what I may call the goodly fellowship of practising doctors and surgeons. You will find even here scope for the exercise of all the altruism in your composition. I do not wish to pitch the note too high. It would be fantastic to pretend that doctors are immune from the ordinary failings of humanity. But I do think that their calling brings into continual play their finer feelings and instincts, and that doctors are specially sensitive to the call of duty. The medical art can do much and will do more, and you may be sure that, as you grow grey in its service, you will see it held in ever-increasing honour.

THE PATHS TO THE STARS.

"Macte nova virtute puer; sic itur ad astra."

Abstract of an Address to Students of the Middlesex Hospital on Oct. 4th, 1927,

BY VICTOR BONNEY, M.S., F.R.C.S.,
ASSISTANT OBSTETRIC AND GYNÆCOLOGICAL SURGEON TO THE HOSPITAL.

YOU students are like men about to march into a vast and unknown country. We older ones are like observers in an aeroplane who can see tracks through the dense forests, fords across the deep rivers, and gaps in the sheer ranges, which are invisible to the explorers on the ground. Viewed from the height that experience and detachment give, the main routes to success seem clear enough, though whether the observer, placed on earth again, could find them is quite another matter.

To fight the battle of life each of us possesses a host of higher cerebral cells, on the measure of whose efficiency and the degree of determination with which they are put into action success depends. The number of these cells in different individuals probably varies very little, and I believe that their quality is also much the same—geniuses and congenital idiots excepted; so that the results attained depend largely on the number trained for and put into active service, and, above all, on the force of the initiative that keeps them at work. Interest in a thing to be done is the driving power that puts the intellect into action. If aroused for the thing's own sake we call it aspiration; if for what the accomplishment will bring, ambition, so that to succeed it is necessary either to aspire or to be ambitious, or, as I think most successful men have done, mix the two in such proportion as you are able. The fundamental secret of worldly success is perfectly summed up by Kipling:—

> "And they asked me how I did it, and I gave 'em the Scripture text,
> You keep your light so shining a little in front o' the next."

Now some of the obstacles to success may lie with Time, Circumstance, or Personality, and by their nature be unalterable. Of circumstances, poverty is often held to be the greatest handicap, but I believe that it is the commonest mainspring of success, for a healthy man hates work and only extends himself under considerable stimulation, and of all incentives an empty pocket is the greatest. To those of you who have to start so I say that your chances of achieving great success are about three times those of your more opulent classmates. Personality, again, is a factor over which the individual has little control. In this matter the odds are on the big man. Size gives an impression of solidity and dependability extending to the mental equipment. I have known men who did handsomely on size alone!

To achieve legitimate success in any profession the first necessity is high technical ability, and, therefore, he who wishes to rise to pre-eminence must train the larger proportion of his intellectual units for that end alone. But if anyone thinks that great technical ability *by itself* is the usual agent whereby a medical man attains outstanding success, reckoned on its vulgarly accepted criteria, I must disillusion him. Of the impediments you will encounter only a proportion are strictly professional. Foresight, tact, and judgment are qualities auxiliary to mere professional skill, and without them you are unlikely to win through. You must therefore avoid excessive professionalism, and, by mixing on their own plane with all sorts of people, learn the follies and greatnesses of human nature, so that you can put yourself in your patients' shoes. It is in general practice best of all that the great quality of sympathy is acquired, and the man of understanding comes to realise how much more scientific it is to treat the patient than merely the disease.

Technical excellence by itself, though it rarely brings great success as the world assesses it, will in time bring a fairly good, and incidentally an honest living. Pukka goods will find a market sooner or later, even though they be ill-presented and poorly advertised. It is, however, possible to allot too many intellectual units to the acquirement of worldly knowledge, so that that foresight and tact may degenerate into calculation and subtlety. It may, of course, be urged that the proportion of professional to non-professional qualities in a doctor's intellectual lay-out should, strictly speaking, depend upon the character of the persons with whom he will have to deal, and that the mind of one whose clientèle consisted solely of university professors would require to be differently organised from one who had to deal mainly with those delightful people who are the mainstay of our weekly pictorial press.

I would remind you that success is not merely a matter of getting to the front but of keeping there; so that having, so to speak, carried the position a

man must have sufficient troops left over to maintain it. Once entrenched, however, behind a big reputation, a relatively modest intellectual effort is sufficient to hold your ground; and this is the truer the more important and elevated the position you have captured. Of material honours and distinctions in any profession or calling, it is the first that needs striving for; the second is always more cheaply bought; whilst when it comes to the fifth or sixth, it seems to be only necessary to sit still under the flowing stream of favour, and the rest is automatic.

I have called this address the Paths to the Stars, for there are many constellations, and we do not all seek the same one. Some are relatively near, and hence shine very brightly; others are so far away that their incomparable radiance can only be seen with the eyes of strong faith, so distant that man's life is all too short for the journey. There are various sorts of success, but there is only one which will win you the applause of our great profession—to leave it better, by your own efforts, than you entered it. The temple of medicine has been reared by innumerable workers, and of it certain great ones have erected whole halls and lofty spires by themselves. Emulate them if you can, but if it can be recorded that you built but one sound stone into the structure you will not be without everlasting honour.

And, finally, let me whisper in your ear that the policy of buying to-morrow with to-day is economically unsound, and remind you of the words of a poet who himself attained to immortality:—

> "Oh, talk not to me of a name great in story,
> The days of our youth are the days of our glory,
> And the Myrtle and Ivy of sweet two-and-twenty,
> Are worth all your laurels, though ever so plenty."

THE PROFESSION OF MEDICINE.

Being part of an Address to Students of the Westminster Hospital on Oct. 3rd

BY E. W. AINLEY WALKER, D.M., D.SC.,
DEAN OF THE SCHOOL OF MEDICINE, UNIVERSITY OF OXFORD.

I THINK it is no empty boast to claim that here in England the leaders of the profession have long been pre-eminent in the art of medicine; but it was not until comparatively lately that the application of pure science, and even of the biological sciences, to medicine received the recognition it deserved. In this respect there has been an enormous change in quite recent years, and it is now generally agreed that accurate scientific knowledge is the only valid basis for lasting success in the application of our art.

Whereas every day's experience in the practice of medicine must necessarily entail an unconscious steady growth, in skill, in clinical insight, and in power of management of the individual patient, an adequate knowledge of the fundamental sciences upon which all progress depends can only readily be acquired by close attention during the brief student period. The man who does not during this time obtain a thorough knowledge of the principles of the fundamental sciences, and some working acquaintance with the ascertained facts, will find himself, after 10 or 20 years of practice, so completely out of touch with the advance of science as to be quite at sea in the application of new facts and new methods. On the other hand, the student who trains himself thoroughly in scientific method has placed himself in a position to assimilate every new advance and to apply it to the benefit of his patient. For my own part I look forward to the time when every student will require himself to take a degree in pure science as a part of his medical studies.

I am becoming uneasy lest amid the multiplicity of subjects with which the student is now required to acquaint himself he may not get that sound knowledge of general medicine and surgery which remains fundamental to the education of the doctor. If we are to avoid disaster it must always be remembered that education is primarily a training of the mind. It is intended to fit the mind to apply itself to each problem that arises, whether that problem has been met before or presents novelty. It is not intended to convert the student at the moment of graduation into a walking encyclopædia of medicine, but rather to give him facility in the use of those faculties of observation and reasoning, and those methods of investigation which will enable him from the first to deal with the ordinary run of practice, to be competent in its common emergencies, not to make gross mistakes and to know when he needs to seek assistance. Hence it is of the first importance that we should not mistake a smattering of information on an infinitude of little special subjects for an education that will fit men to become competent physicians.

It is on the scientific side of medical training that the greatest blots remain. I refer to the comparative neglect of the foundation of medicine—pathology—and the still graver neglect of the foundation of therapeutics—experimental pharmacology. In regard to pathology, there has been an awakening and the neglect is gradually being remedied, though the subject does not yet take that important place in the course of the ordinary medical student to which it is entitled. But the neglect of pharmacology is unfortunately almost unheeded, although on its experimental side the subject offers almost unlimited possibilities to-day. The enormous strides which have been made in our knowledge of organic and synthetic chemistry, and in our acquaintance with hormones, with internal secretions, with vitamins, and with other products of the activities of living matter have opened a wide field for experimental and therapeutic investigation—a field which, because it has been neglected by the faculty, has rapidly become commercialised in certain countries with results that are, as I think, highly detrimental to real progress in the treatment of disease. It is hardly too much to say that a new kind of quackery has sprung up, which is all the more dangerous because it is the doctor rather than the public who is the intended guy upon whom vaunted but ill-tried remedies are daily being pressed in those futile piles of puffs and specious advertisements that fill his morning's post and crown his breakfast table. On this account, if on no other it is high time that due attention be given to the teaching of pharmacology.

Lastly, there is a pressing need for the fuller development of post-graduate study and the organisation of clinical research. After a period of practical experience many a man would welcome the chance of some post-graduate work as an opportunity of filling up the gaps, or of making further advance in some special branch, and I feel sure that if adequate post-graduate facilities were generally available in the schools, the great majority of medical men would sooner or later gratefully avail themselves of the opportunity of returning from time to time for the refreshment of their knowledge, the adjustment of their outlook and the awakening of that renewed activity of mind that we call keenness, which results from contact with the work and spirit of a teaching hospital. The establishment of post-graduate teaching would infallibly lead to renewed activity in the field of clinical research, a department of medicine in which at the present time we seem to be making somewhat less progress, in comparison with other countries, than we have a right to expect. There is the less excuse for this state of affairs in that by far the majority of men of outstanding ability in medicine in this country turn into clinical work. The explanation no doubt lies partly in the peculiar difficulties which beset clinical investigation, but to my mind it lies quite as much in the absence of that stimulus which in other departments of medical science is afforded by the presence in their laboratories of post-graduate pupils and research workers.

Clinical research is, almost necessarily, a more severe and arduous discipline than the general run of pure laboratory investigation. The laboratory worker is fortunate in that he is able to select his problem

He can arrange its conditions, he can vary them at will, and he can repeat his experiment as often as he chooses, ringing the changes in this direction and in that until he is able to evaluate precisely the bearing of each factor and the meaning of the whole phenomenon under examination. The clinician, on the other hand, has to take his problem as he finds it, the conditions are set by nature, and she takes pleasure in subjecting them to all kinds of arbitrary variation; perhaps few, if any, of the factors may be under the control of the observer, and even the problem itself is often difficult to isolate and to define precisely. Yet every page in the history of medicine proves that all such difficulties can be overcome.

DENTAL RESEARCH AND ITS SERVICE TO THE NATION.

Abridged from an Address delivered at the Opening of the J. H. Hale Laboratory, Royal Dental Hospital, on Oct. 4th

BY SIR WALTER FLETCHER, K.B.E., M.D., F.R.S.,
SECRETARY OF THE MEDICAL RESEARCH COUNCIL.

AFTER congratulating the school on a successful year, and welcoming the new students, Sir Walter Fletcher continued :—

The special event of to-day is the first opening of the new research laboratories which have been built here by aid of a grant from the United Kingdom Dental Board. Their equipment and upkeep have been provided in chief part by the generosity of Mrs. Hale, who dedicates her gift to the memory of her husband, John Hampton Hale, formerly chairman of the hospital. These new laboratories are undoubtedly a valuable addition to the school, but the significance of our ceremony to-day goes far beyond that. The laboratories are an outward and visible expression, perhaps the first which the public have had an opportunity of noting, of a new and very striking movement in the dental profession. I doubt the general public having any conception of the new policy by which the dental profession are themselves directly supporting and promoting both education and research in their art and science. Under the United Kingdom Dental Board, every practitioner registered since 1921 pays not only a registration fee but also an annual fee, and as the register grows, the whole dental profession will be included as contributors. The fund already amounts to about £40,000 a year, and this is spent under the management by the Board in promoting education and research, and the public ought to notice and appreciate this most honourable and enlightened policy, at present almost unique in its kind. Dental practitioners are directly and with good will supporting a fund for promoting the two great movements that in a narrow view might seem to be most damaging to their immediate self-interest —education, bringing into the competitive field the ablest and best-equipped rivals, and research, of which the deliberate aim is to prevent dental surgeons so far as possible from having any work to do at all. Could there be a more notable example of public-spirited altruism? Now that the lead has been given by the dental profession, we may all wish that admiration by other professions of their movement may presently stimulate imitation. Supposing members of the medical profession each paid a small annual contribution in recognition of the privileges given them by registration, and that the fund so produced was devoted in the high spirit of altruism to the interests of the public by being used to promote improved and better sustained medical education, and in gaining improved medical knowledge through research! Do you realise that if each doctor in the United Kingdom contributed what each dentist now contributes, there would be a fund of no less than a quarter of a million sterling annually for medical education, whether undergraduate or post-graduate, and for medical research?

In framing their research policy the Dental Board have entered into coöperation with the Department of Scientific and Industrial Research, and for study of their special problems in mechanics, metallurgy, and refractory materials, have thus taken into alliance the whole system of scientific effort throughout the country with which that Department is in touch.

A coöperative alliance has also been effected between the Dental Board and the Medical Research Council in respect of research in dentistry upon the preventive and curative side. There are few problems of preventive medicine of more significance to the race, and not least to the people of our nation at present, than that of the proper development and preservation of the teeth. Every modern gain in our knowledge only serves to emphasise in some new way the scientific and medical interest of this set of problems. The Council I serve have recognised this from their beginning, and so far as their means allowed have lost no opportunity of assisting work in what is in many respects a peculiarly difficult field. They greatly welcomed the coöperation which the Dental Board offered them four years ago, and now the two bodies join together in financing the schemes of research recommended and generally supervised by an investigation committee upon which laboratory workers in bacteriology, biochemistry, and nutritional physiology sit side by side with clinical and anatomical observers under the chairmanship of that distinguished member of your staff here, Mr. Norman Bennett. My Council belief, and they hope the Dental Board also are satisfied, that by this partnership economy is well served and scientific efficiency increased. It will be our hope that the new laboratories we are to inaugurate to-day will play their own distinguished part in this coöperative scheme of investigation.

Who can doubt the value of this research work? It is now almost a commonplace to say that the improvement of the teeth of the nation is one of the most urgent of outstanding problems in prevention. Yet while we recognise this, it is useless and perhaps worse than useless to demand or expect quick and easy results from the investigations. Money is necessary to get freedom and opportunity for the right workers, and money invested in research rarely fails in the long run to give a high return of interest and often at an almost fabulous rate. But you cannot by merely putting money down either secure quick results or, indeed, command any at all. New natural knowledge cannot be bought; it is the product of the right man in the right place and of his unfettered labour. As Bishop Hall, of Norwich, said truly 300 years ago: "There was never good thing easily come by . . . God sells Knowledge for Sweat." Further, the endowment of research not uncommonly leads to a research after endowment. There are always those, whether trained or untrained, who are ready to undertake investigation in any direction without definite clue or clear objective. The true limit to a research programme is fixed not by the money at disposal but by the number of persons fit and available, and they will always be scarce. We must not only be patient in waiting for results but catholic in our scientific spirit. With a definite utilitarian goal before us, as here, that of preventing dental disorders, there is a common danger of expecting success from the frontal attack and of neglecting to observe and foster the progress of those who, perhaps in some quite different field of work, are reaching a point from which a flank attack may gain the whole position we are seeking. Nature's clues rarely lie in the straight line and the key to some great advance in dental knowledge may be lying implicit in studies that seem now to be quite alien. To those who can help us by some other road upon the flank we must be more encouraging than the Irishman who, when asked by a belated traveller the way to Roscommon, said: "Bedad, and it's a long way. If you're going to Roscommon you shouldn't be starting from here."

What has been needed, and what the committee have been giving their chief energies to obtaining, has been better knowledge not so much of dental

disease as of dental health; not so much of the specific diseases that may attack the teeth as of the conditions upon which their natural resistance to disease depends. Recent work in this country has drawn increasing attention to the exquisite elaboration of the minute architecture of the teeth, not only as it is built up when the tooth is first constructed for its long years of hard service, but also in the processes of its repair against later damage. Evidence has been accumulating that if this architecture be perfect, as it should normally be, the attacks of disease are prevented or minimised.

Recent work has been increasingly bringing dental problems into line with those of general physiology. The normal architecture of the teeth, like that of the bones and other organs of the body, depends upon the right supply and balance of particular parts of the diet during their growth. It seems that whether from the very intricacy of their wonderful structure or whether for other reasons the teeth in their formation are even more sensitive to nutritional conditions of given kinds than other parts of the body. Certainly we all know how often a human body, splendidly formed and functionally fit in every other way, is marred only by faulty teeth. Dental practitioners in the future may have new and wider service to give by aiding their colleagues in other medical fields to use the new and sensitive index to complete normality which the teeth in their formation and repair seem destined to provide. The progress made in these directions is full of hope because we seem to be in sight of new powers altogether, in the light of this new knowledge, and full of interest because at every step in the work problems of deep significance in biological science are being raised and illuminated. It has special interest, too, because the advances made here are all tending to bring preventive dentistry into new and closer relations to the general body of medical science. Solomon said in his wisdom: "Hardly do we guess aright at things that are upon earth and with labour do we find the things that are before us." Here and to-day in your new laboratory we dedicate a fresh enterprise in the long quest for knowledge; we shall pray that it may serve well the highest interests of your profession and bear its due part in winning more knowledge for the dignity and interest of mankind and more power for his help in this and other nations.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

THE following appointments have been made: Surg-Comdrs. R. J.G. Parnell to *Queen Elizabeth* and to *Warspite*, as squadron medical officer and for specialist duties on station (on transfer); W. N. L. Cherry to *Queen Elizabeth*, as Fleet M.O. (on transfer); and C. H. M. Gimlette to *Effingham*, as specialist in ophthalmology (on recommg.). Surg. Lt.-Comdr. A. W. North to *Titania* (on relief). Surg. Lts. P. J. A. the O'Rourke to *President*, for course of instruction, and to *Dolphin*; and A. E. Phillips to *Ambrose*.

ROYAL NAVAL VOLUNTEER RESERVE.

Proby. Surg.-Lt. R. A. Connon to be Surg.-Lt.

ROYAL ARMY MEDICAL CORPS.

Maj. F. R. S. Shaw (secd.) retires, receiving a gratuity.

Temp. Capt. W. L. Hay relinquishes his commn., and is granted the rank of Maj.

Lts. (on prob.) confirmed in their rank: W. G. S. Foster and W. F. Cooper.

ROYAL AIR FORCE.

Flight Lt. P. D. Barling is granted a permanent commission in this rank.

VOLUNTARY AID DETACHMENTS.

Substantial progress continues to be made in the organisation of Voluntary Aid Detachments, as part of the voluntary reserve of the Medical Services by the Crown, under the scheme which was launched four years ago with the approval of the Army Council. Detachments numbering 821 have now received official recognition, and their members number 20,077. Of these 3180 have undertaken an obligation to serve at home or abroad in the event of a national emergency, while the others have agreed to do duty as they may be required within reach of their homes.

Special Articles.

REQUIREMENTS OF THE POPULATION IN MILK-FAT AND THE AVAILABLE SUPPLY.*

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THE work of McCarrison and the experiments which I have carried out with Drew, Kingsbury, and Mottram have shown that a diet may contain a sufficient amount of vitamins to prevent the occurrence of the so-called deficiency diseases, but may, nevertheless, be so poor in its vitamin content as to prevent an animal from maintaining its health. A study of the mode of action of the vitamins has led us to conclude that these substances have a specific stimulating action on certain tissues and organs in the body of the living animal. If this stimulus is not supplied in the food in adequate amounts the functional activity of these cells or tissues is impaired. The degree of impairment varies with the degree of inadequacy in the supply of the stimulus and with the length of time over which it is allowed to act. In this manner all degrees of deviations from health are produced by diets inadequate in their vitamin content. The mode of action of vitamins resembles in many respects that of hormones, and the term "food hormones" enables one to form a mental conception of the manner in which disturbances of health can result from diets showing varying degrees of inadequacy in their vitamin content.

In order to study these conditions it is necessary to work over long periods and on a population of animals bred in the laboratory from a known stock and kept under controlled conditions. It is thus possible to show that rats kept on a natural diet poor in vitamins, such as white bread, maize, and rice, will grow and breed and present an apparently normal appearance. But when compared with another population in which an ample supply of vitamins has been added to this diet, it will be found that on the poor diet they do not grow as well as on the rich diet, nor are they able to rear their young as well. Perhaps the most striking difference is that on the poor diet the older animals develop almost without exception an infection of the lung (septic broncho-pneumonia), while on the rich diet this is a rare occurrence. Mellanby has recently confirmed this observation in experiments on dogs. As I have shown in previous publications, the literature contains ample evidence that similar conditions obtain in the human subject. In industrial schools apparent epidemics of pneumonia have occurred and recurred, before we knew of the existence of vitamins, in spite of the greatest attention given to housing. A revision of the diet in the light of our present knowledge of dietetics showed that in these schools the diet contained an inadequate supply of vitamin A, and when this error was corrected these apparent epidemics ceased. It is not unreasonable to suggest that the frequency with which broncho-pneumonia occurs in the children of the poorer classes is due to this dietetic error.

A study of the mode of action of vitamin A has afforded an explanation of this remarkable fact. Vitamin A has a specific stimulating action on the mucous membranes, especially those of the respiratory and digestive tracts. These are always in contact with bacteria, but in perfect health the bacteria are not enabled to infect these mucous membranes because the secretion of mucus acts as a mechanical and possibly also a chemical defence against the

* A paper read before the Section of Physiology at the meeting of the British Association in Leeds.

bacteria. If the supply of vitamin A is inadequate the activity of the mucous secreting cells is impaired; they become atrophic, and then the bacteria are enabled to penetrate into the mucous membranes, and produce varying degrees of infection of these tissues. These infections may remain localised for a long time in the affected mucous membranes or lungs and produce apart from the local disease a general toxæmia. If sufficiently prolonged bacteria pass into the blood stream, exhaust the humoral defensive mechanism, and set up an infection elsewhere or even a mild septicæmia. These effects are accompanied by changes in the blood, a thrombopenia and an anæmia. The importance of these findings lies in the fact that the mucous membranes of the respiratory and digestive tracts are the portals through which most bacterial infections to which we are prone enter. It is, therefore, in our power to increase by dietetic measures our resistance to such infections. These findings have been confirmed and extended recently by Koessler, Maurer, and McLoughlin,[1] who have also successfully applied these experimental results to the treatment of anæmias in man.

Another striking demonstration of the truth of these statements and of its applicability to man has been furnished recently by the important investigation of Dr. Corry Mann [2] on boys in an institutional school carried out under the auspices of the Medical Research Council and published by them. I cannot do better than quote from the official introduction to this report:—

"It is difficult to exaggerate the social value and the national importance of knowledge which may help to solve the problem of what diet in quantity and in quality provides adequate nutrition for the growing boy or girl. Adequate nutrition we take here to mean that which allows the full unfolding in growth of the best potential qualities, physical and mental, inherent in the child at birth. . . . The need for criteria of 'adequacy' in a dietary is felt most, of course, when circumstances demand economy in the choice of its constituents. It is a need, appreciated or not, for all classes of the community in different degrees. Unless the defects in nutrition which follow upon the use of a given diet are of an obvious kind, unjustifiable faith in the adequacy of a diet may easily arise. The supply of a dietary tends to become traditional and its efficiency unquestioned. Appetites may be apparently satisfied, and if the health and progress of individuals fail to reach a high standard the explanation is commonly sought in the factors of past history and inheritance as affecting children, derived for the most part from the lower social strata. Only close and discriminating study can decide between the influence of such factors and that of possible dietetic errors.

"The investigation shows clearly that the nutritive value of a dietary, which was originally chosen with every regard for the welfare of the children to be reared upon it, could be strikingly improved by additions which, in a quantitative sense, were small. It is startling to learn, as we do now, for instance, that the addition of one pint of milk a day to a diet which by itself satisfied the appetite of growing boys fed upon it, could convert an average annual gain of weight of 3·85 lb. per boy into one of 6·98 lb., and an annual average increase of height from 1·84 inches to 2·63 inches. This unmistakable betterment in nutrition was proved by trial to be due, not to the relatively small increase in the fuel value of the dietary, nor to the extra protein supplied in the milk, but rather to more specific qualities of milk as food. . . .

"It is of the first importance to notice that the improved gain in weight and height, taken as the measurable characters in this inquiry, were found to be accompanied regularly by improved general health and 'spirit.' If the nervous system of a growing boy is improved in its nutrition and one, it does not follow that under ordinary conditions he will show better mental proficiency in school marks or better conventional behaviour. As Dr. Corry Mann observes, the boys who got the extra ration of milk and did best in weight and height were easily recognisable as 'obviously more fit than those of the other groups.' This was the testimony of all those who saw the progress of the inquiry. The improved 'spirit' of these boys led to their being more often in trouble for minor offences against order. No measurable indications were found of their having greater proficiency at school work, but this, in the absence of any modification of disciplinary or teaching methods, is not to be weighed against the general evidence for greater mental vigour. Common sense will always hold that high spirits are a sign of healthy boyhood, and that no dietary can be 'adequate' that does not permit their full development."

Another significant effect of the addition of milk is given in the following statement taken from Dr. Mann's report (p. 33):—

"During the winter of 1923–24 there was a complete absence of illness among the boys with the milk ration, although in other houses of the village the sickness-rate had been somewhat higher than usual owing to naso-respiratory catarrh (influenza), and to a limited outbreak of measles and scarlatina."

The observations made by Dr. Corry Mann on growing boys are thus an almost complete replica of our observation on animals, in which a similar result was obtained by adding substances rich in vitamin A and B to a basic diet otherwise poor in these vitamins. Although Dr. Corry Mann does not definitely state that he attributes the effects observed to the presence of vitamins in the milk or in the butter, which in another group was added to the diet with similar good results, an examination of his basic diet shows that it was poor in vitamin A and certainly not abundant in vitamin B. The main supply of vitamin A in the basic diet was represented by about 3–4 oz. of milk per head per day. In this connexion it may be stated, although it is obvious, that the vitamin A content of milk is not the only factor which confers upon milk its high dietetic value. Other factors are the high mineral content of milk which is of special importance to the growing organism and the presence of a protein (caseinogen) of high biological value.

As stated in the introduction to Dr. Corry Mann's report, height and weight are the only measurable criteria of dietetic efficiency. They are also the most obvious ones, and it is for this reason that the dietetic errors with which we are dealing here are most readily observed in children. But in so far as liability to infections of the mucous membranes and mental vigour are dependent upon dietetic factors, the adult organism is as much dependent upon an adequate diet as the growing one, and it would be a serious error to neglect the importance of an adequate vitamin supply for the adult organism.

In our experimental observations we have brought abundant evidence in support of the contention that an ample supply of vitamins is as essential for the adult organism as it is for the growing organism. We also wish to emphasise the importance of Dr. Corry Mann's observations upon the psychological effects of a diet inadequate in specific substances.

It is clear then that the living organism cannot attain its full development or maintain it without a supply of vitamin A very much larger than that necessary to prevent the specific deficiency disease or even any obvious forms of ill-health. Taking into consideration the dietetic habits of the population in this country, the problem of providing an ample supply of vitamin A in the diet resolves itself from the practical point of view into the problem of providing an ample supply of milk or butter. It is therefore a question of considerable importance to ascertain the minimum of milk-fat which ought to be included in our dietary and which may be taken as a measure of the requirements of man in vitamin A. The evidence bearing on this point is essentially circumstantial. One indication is given by the amount of milk consumed by an infant when it is weaned. This is 1 quart per day and contains about 40 g. of milk-fat. In an extensive investigation into the food requirements of children, Holt and Fales[3] come to the conclusion that the requirements in fat as such (not necessarily milk-fat) increase proportionately to the weight so that for every age the fat requirement is about 3 g. per kilo body-weight. Thus from the 36 g. of fat consumption of the first year the requirement gradually increases to 100 g. at about 10 years of age and rises even higher to 125–150 g.

[1] Jour. Amer. Med. Assoc., 1926, lxxxvii., 476; 1927, lxxxix., 38.

[2] Report of Medical Research Council, 1926. Special Report Series No. 105.

[3] Amer. Jour. Dis. of Children, 1922, xxiii., 471.

from 13–16 years. In the first year the fat requirement is covered entirely by milk-fat taken in the form of milk. As the child grows older the fat requirement is covered partly by butter, and later also by animal fat and the milk consumption diminishes proportionately. It can hardly be doubted that where there is a free choice of diet the bulk of the fat requirement would be covered by the consumption of milk, cream, and butter. It has been stated already that the special value of milk to the growing organism lies not only in its vitamin A content, but also in its content of mineral salts, of which the growing organism is particularly in need.

In the dietary recently drawn up for a New York hospital for children [4] 1 quart of milk per day and 1½ oz. of butter are given as the daily allowance. This would represent a consumption of milk-fat of about 80 g. In a study of the dietary of an American public school Gephart [5] gives a daily consumption of fat of 200 g. per day per boy, which was covered almost entirely by milk and butter. Gephart describes the diet as ideal, and states that the place held by milk in this dietary is to be commended.

A measure of the amount of milk-fat required by an adult person may be obtained by determining the amount of milk-fat consumed by normal adults where there is a free supply of milk and butter, so that the consumption is not limited by economic considerations, but is conditioned merely by the normal appetite. From observations in a household where butter appears on the table at every meal, I find that the average consumption of an adult person is 1 oz. of butter and ½ pint of milk per day. On looking up an old text-book of physiology,[6] written before the discovery of vitamins, I find in the dietary given as a specimen 1 oz. of butter and ¾ pint of milk per day. These figures again represent 40–50 g. of milk-fat per day. Widmark [7] gives 52 g. of milk-fat per day as the average daily consumption of milk-fat among the working classes in Sweden. In an interesting paper Widmark shows how, as the result of the Great War, a whole nation—Denmark—has been made the involuntary subject of an experiment demonstrating that the health of a population improves when the average consumption of milk-fat is kept above a certain level. This level Widmark finds to be 40 to 50 g. of milk-fat.

It is significant that all the evidence bearing on the requirement of milk-fat in the diet leads to a minimal figure of 40 to 50 g. per head per day, or in ordinary terms, a glass of full milk and an ounce of butter. If this figure is accepted as a basis, it is possible to calculate the requirements of milk-fat per annum for the population of this country. The milk-fat available for consumption can be calculated from the milk production in this country and from the import of butter. The amount of condensed milk imported has not been brought into the calculation, partly because its vitamin A content is often poor and also because in any case the amount of condensed milk imported is relatively so small that it does not seriously affect the conclusions which can be drawn.

The calculation is as follows :—

Requirements.

a Consumption of milk-fat per person per day, 40–50 g. Total requirements of population (43 millions) per annum =628 to 785 million kg.

Available Supply.

b Home milk production=1350 million gallons=6142 million litres=6327 million kg. milk=253 million kg. milk-fat.

c Imported butter=268 million kg. Imported milk-fat =227 million kg.

b & *c* Total milk-fat available=480 million kg. Available, if rationed, 30 g. per person per day.

a—(*b* & *c*) Deficit of available milk-fat=148–305 million kg.

[4] Carr, W. L.: Bull. New York Acad. of Med., 1927, iii., 453.
[5] Boston Med. and Surg. Jour., 1917, clxxvi., 17.
[6] Stewart, G. N.: Manual of Physiology, fourth edition, London, 1900.
[7] THE LANCET, 1924, i., 1206.

The calculation shows that there is a considerable deficit of available milk-fat. Some idea of its extent can be gathered from the fact that the milk-fat available, if rationed equally, would give only 30 g. per head of the population. Since a large part of the population consumes its ideal minimal quota of 40–50 g., and a smaller part will even exceed it, it is clear that another large part of the population will have a consumption of only 20 g. of milk-fat and even less. Since this paper was read the annual report for 1926 of the Chief Medical Officer of the Ministry of Health has been published in which reference is made to the same problem. Sir George Newman states (p. 185) :—

"The average daily milk consumption of the population of England and Wales has been estimated at about one quarter pint per head, and in some populous districts is as low as 0·08 or even 0·06 of a pint per head."

Another point which should be noted is that only one-half of the available milk-fat is produced at home, the other half of the available milk-fat is imported from abroad. The countries mainly responsible for this supply are Australia and New Zealand which supply one-third of the imported butter, and Denmark which supplies another third. I have no information whether the average milk-fat consumption in Australia reaches the ideal minimal ratio of 40–50 g. per day per head, so that the exported butter would represent a surplus. For New Zealand I am indebted to the High Commissioner for New Zealand for supplying me with the following figures for the year 1924–25 :—

Article.	Production.	Excess of exports over imports.	Amount available for home consumption.	
			Quantity.	Per head
	lb.	lb.	lb.	lb.
Butter.. ..	181,657,666	140,549,771	41,107,895	30·3
Dried milk..	14,459,370	10,854,525	3,604,845	2·6
Preserved milk.. ..	5,261,648	1,666,382	3,595,266	2·6

The average daily consumption of butter in New Zealand per head amounts therefore to over 37 g., 32 g. of milk-fat. This figure is actually higher than that postulated by us as the minimal optimum requirement of milk-fat consumed in the form of butter. Although the consumption of milk as such cannot be calculated from these figures they are sufficient evidence to show that the people of New Zealand are covering their minimal requirements in milk-fat before exporting any of it, so that their exports represent a surplus. The figures also show that we have not over-estimated the amount of milk-fat consumed as butter where it is freely available. But as far as Denmark is concerned, the export of milk-fat does not represent a surplus, so that the Danish people are starving themselves of milk-fat in order to export it. Widmark in his paper shows that the average daily consumption of milk-fat in Denmark has fallen from 40 g. in 1909 to 30 g. per head in 1919, with a demonstrable deterioration in the health of the people. During the years 1917 and 1918 the export of milk-fat was forbidden, and although less milk-fat was produced during those years the average consumption of milk-fat fell again rapidly to the low figure of 19 g. per day per head in 1920. As the consumption of butter diminished, that of margarine has increased proportionately. It will be noted that the low figure of the milk-fat consumption in Denmark for 1914 closely approximates that found for the country, in spite of the fact that in Denmark the home production of milk-fat exceeds the needs of the population. Economists will probably tell us that this must necessarily be so because milk-fat, like any other commodity, is subject to economic laws. But the economy of foodstuffs cannot be divorced in

ong run from dietetics. The replacement of butter y margarine may appear to be justified on economic rounds, because the cost of butter is twice that of nargarine. On dietetic grounds, however, butter is ot merely twice as valuable as margarine, but is in act irreplaceable by it, so long as the minimum equirements of milk-fat have not been covered. hat is to say, margarine can replace butter after the inimum daily requirements of 40 to 50 g. of milk- t have been supplied. But until this amount has een supplied it is more economical to buy 1 oz. of utter than to buy 2 oz. of margarine, which cost ne same amount. Even from the point of economics ne cost of imperfect development, ill-health, and sease ought to be debited against a dietary which not adequate. Once this is recognised there will e an enormous demand for milk-fat which, as things re at present, cannot be supplied.

It would be important to know the production of ilk-fat and the consumption in the different civilised ountries. It would also be of importance to ascertain hether during the last 20 years the production of ilk-fat has kept pace with the increase in the popu- tion. I believe it will be found that at present e are suffering from a world shortage in the production milk and, if the conditions in Denmark may be ken as a guide, that this shortage has been becoming creasingly acute during the last 20 years. A easure of the present shortage is given by the nsumption of margarine in different countries. his can be seen from the following figures which ve the yearly consumption per head in English ounds :—

Denmark	45·50	Sweden	12·25
Norway	35·25	England	11·75
Holland	15·70	France	1·50
Germany	12·30		

the daily consumption of margarine per head is lculated for England it amounts to 14 g. The erage daily consumption of milk-fat (30 g.), plus argarine (14 g.), is therefore 44 g. Since this rees with the figure of 40–50 g. given by us as the nimal daily requirement in milk-fat, it confirms r contention that on a freely chosen diet this nount of milk-fat would be consumed, and attests e soundness of the basis of our calculation for the quirements in milk-fat of the population.

It has been argued that the shortage in milk pro- ction is not of serious import, because other sources vitamin A are available in nature. This objection trays a complete misunderstanding of the problem. goes without saying that there is sufficient vitamin A ailable in nature to cover our requirements. For far as we know the cow does not synthetise the amin A which is passed out in the milk, but derives from the food. All the dairying in the world nnot, therefore, increase the store of vitamin A ailable in nature. What dairying does is to present amin A in articles of food which are palatable, nvenient to handle and to consume, and valuable food also from other points of view—for instance, a source of a protein of high biological value, and those mineral constituents in which most other odstuffs are deficient. Whether for reasons such these or on other grounds, it is a fact that for the ople of this country the main source of supply of amin A in the diet is full milk and butter. More- er, their dietetic habits are such that where full lk is not consumed and butter substituted by rgarine, the resultant deficiency in the intake of amin A is not compensated for by an increased ake of other articles of food containing vitamin A, h as green vegetables or salads, although in ory they would be able to do so. Here, again, nomic considerations probably play an important t.

We have to deal with conditions as they are and as they might be. We have shown that large sses of the community suffer from a deficient ake of vitamin A. The remedy of this defect is a ficult and intricate problem. It is intricate because it involves the consideration of economic factors, of taste, of dietetic habits, and of a better understanding of the dietetic value of articles of food. One obvious remedy is the increased production of milk which is irreplaceable as such, and of special value to the growing organism. I believe it is not an exaggeration to say that a flourishing dairying industry, capable of supplying clean milk rich in vitamin A, is essential to the welfare of the community. The shortage in the production of milk is, however, so great as to make it improbable that it could be overtaken even if the milk production is greatly increased. There are also economic reasons which will make it impossible for large classes of the community to cover their vitamin A requirements completely by milk-fat. The necessity of a cheaper substitute for milk-fat will therefore remain, but it is desirable that this substitute should approximate more closely to the dietetic value of milk-fat than it does at present. The deficiency of margarine in vitamin A, and also the deficiency in calcium salts, in which butter is relatively rich, make margarine an inadequate substitute for butter. This defect can be remedied, for I am informed that a brand of margarine as rich in vitamin A as butter is already available on the market. It is significant, however, that its price is higher than that of the best margarine, though still lower than that of the cheapest butter.

The solution of these problems is dependent upon the collaboration of the medical profession. While it is obviously impossible to increase the consumption of milk and butter without increasing their production, it is also unreasonable to expect the farmer to increase the production of milk unless he can rely on an increased demand for milk and butter by the population. This can only be created by the teaching of the medical profession, upon which in matters of dietetics the public relies. On the other hand, the medical profession can impress upon the farmer the necessity of producing milk which is clean and rich in vitamin A. Fortunately, a beginning in this direction has already been made. No less an authority than Sir George Newman states in his report already referred to—"On the State of the Public Health" (p. 186) :—

> "When it is realised that little more than a quarter of a pint is the average daily consumption of milk in this country at the present time, some conception can be formed of (*a*) the inadequacy of the amount of this most valuable food, which its children are receiving, and (*b*) the improvement in their growth and vigour which might certainly be secured by an adequate increase in its consumption. . . . An important factor in bringing about this much desired result is the creation of confidence in the purity of the supply, and making milk more attractive to the consumer by enhancing its cleanliness and its keeping qualities."

For reasons already given in this paper, these considerations should apply also to adults and to their consumption of butter.

Summary.

1. It is possible to calculate the vitamin A requirements of man in terms of milk-fat. Every individual requires an average daily consumption of 40 to 50 g. of milk-fat, either in the form of milk or butter, in order to maintain his full health and vigour. This applies both to adults and to children. At the present time the average daily consumption of milk-fat is far below that figure for a great part of the population.

2. The total milk-fat produced in this country represents only 30–40 per cent. of the total average requirements of the population. The total milk-fat available in this country (home-produced milk-fat plus imported milk-fat) represents only 60–75 per cent. of the total average requirements of the population.

3. There are indications of a world shortage in the production of milk.

4. These conclusions emphasise the importance of increasing the production and the consumption of milk and butter.

ST. MARY'S POST-GRADUATE COURSE.

FOR the sixth consecutive year a refresher course, open without fee to all medical practitioners, was held at St. Mary's Hospital, London, over the first week-end in October and was well attended. While the majority of the 11 sessions were in the nature of informal demonstrations it is possible to epitomise several of the lectures.

The Treatment of Pernicious Anæmia.

Sir WILLIAM WILLCOX said that early recognition of the disease is a most important factor in the treatment of pernicious anæmia. A definite anæmia associated with a colour-index of approximately 1 or over, with a leucopenia, and a differential count showing diminution of the polynuclear leucocytes, and an increase in the lymphocytes, should be a sufficient indication of the pernicious type of the anæmia. Careful investigation and active treatment in the early stages may be rewarded by arrest of the disease and, he believed, by complete cure in some cases. In undertaking the treatment of a case it must be borne in mind that the disease is progressive, and will inevitably proceed to a fatal termination if left unchecked; therefore no effort should be spared to eliminate any possible causal factors, and the fullest advantage must be given to the beneficial value of a special diet, rest, general hygienic conditions, and medical remedies.

The first step in treatment is careful investigation for any possible causes which may be contributing to the blood destruction. All authorities are agreed that septic infection in the body is an important causal factor. In the many cases which had been under his care, and in which careful investigations had been made, there had always been definite evidence of toxic causes which he thought was amply sufficient to account for the symptoms of the disease. In pernicious anæmia the blood-forming organs appear to bear the brunt of the underlying toxæmia present. The teeth should be examined clinically and radiographically, and all those showing evidence of sepsis, and also loose or dead teeth, should be removed. The accessory nasal sinuses should be examined clinically and by X rays, and suitable treatment given to minimise infection from these sources. Septic tonsils should be removed. The gastro-intestinal tract should be investigated by X rays, by test-meal, and bacteriologically. The urine should be tested for indican for evidence of colon stasis. In most cases of pernicious anæmia a secondary infection is found in the intestinal tract (probably mainly in the colon), and this serves to maintain the infection when other causes have been removed. Suitable treatment for any abnormal condition should be carried out. Often Plombières colon irrigations on alternate days are of value. The urogenital tract should be investigated clinically and bacteriologically, and, if necessary, any abnormal conditions treated. The organism most commonly found present is a streptococcus, which may be of the viridans or hæmolytic type. Sometimes a coliform organism of hæmolytic type may be found. Vaccine therapy may be of value in aiding the removal of infective causes. Great care is necessary in its use, since these patients are usually sensitised to the underlying infection, and weak vaccines in small doses are indicated.

The careful and able investigations of Murphy, Minot, and their colleagues in America into the value of a special dietary in pernicious anæmia form a marked advance in the treatment of this disease, continued Sir William Willcox. They have shown that a diet composed of foods rich in complete proteins —particularly liver—and containing an abundance of muscle meat, fruit, and green vegetables, and low in fat, is of great advantage. They recommend as daily requirements: liver or kidneys, 20 g.; red muscle meat or heart, upwards of 125 g.; green vegetables, not less than 300 g.; fruits (grape-fruit, oranges, &c.), 400 g.; fats restricted to 70 g.; bacon, cheese, and fried foods to be avoided; milk to be limited to 240 g.; starchy foods not to be taken in excess. A very careful investigation of 46 cases has shown marked improvement after two weeks' treatment by the above dietetic régime. And the improvement has been maintained while the patients have followed the recommendations. Before commencing the special dietetic treatment, it is necessary to carefully study the digestive capacities of the individual so that the diet treatment may be undergone without distaste. From trial of the suggested diet in several cases under his care, Sir William Willcox was convinced that it is of value and marks a distinct advance in treatment.

Hydrochloric acid is of definite value. It should be given in doses of ℥ xx.–xxx. of the dilute acid (B.P.), diluted with 3 or 4 oz. of flavoured water and sipped with the meals. Murphy recommends the use of hydrochloric acid with his special diet. Arsenic has been one of the most used remedies. It may be given in the form of liquor arsenicalis or the hydrochloride solution. It should not be given in too large doses, owing to the risk of symptoms of arsenical poisoning, such as neuritis. Arsenophenol compounds intravenously have been recommended but in the speaker's experience they are not usually of value, and may be dangerous, since hepatitis and jaundice may result from their use. Arsenite of iron in solution may be given intramuscularly and appears to be of value; gr. $\frac{1}{3}$ in 1 c.cm. of water on alternate days for 12 doses would be a suitable course. Cacodylate of soda, gr. $\frac{1}{2}$ in ℥ x. of sterile water, may be given hypodermically daily for 20 days. Rest in bed, fresh air, and suitable climatic surroundings are essential and artificial sunlight is of value in raising the body immunity.

Blood transfusion is of great value in cases of pernicious anæmia. It helps the severe cases over the stile, so that they may afterwards receive the full benefit of the diet and medicinal and general treatment. If the hæmoglobin percentage is 40 per cent. or lower, blood transfusion should be given without delay. It is a mistake to defer the transfusion until the hæmoglobin has fallen to 30 per cent., for then one transfusion is not enough, and two or more may be required. In Sir William Willcox's experience there is no special advantage in giving immunised blood. The usual care should be taken in giving blood of appropriate grouping. A quantity of about 500 c.cm. is desirable. Sometimes after a transfusion a transient rise of temperature and a rigor may occur within 24 hours. The administration of alkalies—e.g., citrate of potash in doses of gr. 4 three times daily, for the preceding 24 hours—minimises the risk of a reaction. After a blood transfusion there is a slight rise in the hæmoglobin percentage for three or four days, and then there is a further increase. The blood transfusion acts not only as an addition of fresh hæmoglobin, but as a stimulus to the blood-forming organs. In severe cases several repetitions of the blood transfusion may be required. After the successful treatment of a case of pernicious anæmia it is most important that the patient be kept under medical observation for a long period, since remissions are of such common occurrence in this disease. Periodic blood examinations are of the utmost importance, so that any set-back may be suitably treated in its early stages.

How to Deal with Retention of Urine in an Old Man.

Mr. ZACHARY COPE said that retention of urine in an old man is most commonly due to obstruction by an enlarged adenomatous prostate, less often to malignant disease of that gland. Tabes dorsalis must be excluded and care taken to see that the condition is not one of suppression of urine. Primary atony of the bladder occurs but is rare. It is of importance to distinguish between acute and chronic retention. The chronic form may have been going on for months without symptoms or pain, the urine being passed regularly as an overflow: the kidneys are affected by the back pressure and it is then dangerous

to empty the bladder quickly. The acute form, which is painful, supervenes in a patient who looks and feels well. The practitioner should first assure himself that the retention is due to the prostate, next determine whether it is acute or chronic, then relieve the over-distension without risking injury to the kidneys by too sudden diminution of pressure. Sometimes the patient may be induced to pass water by the influence of warmth applied to the hypogastrium or perineum, or by a sitz bath. A belladonna suppository may lessen any spasm. If a catheter has to be passed scrupulous care should be taken to avoid infection. A rubber Jacques catheter can do least damage but must be well lubricated and may fail. Usually a coudé or bicoudé silk-wove gum-elastic catheter will pass; it can be boiled before use. An assistant's finger passed into the rectum may help. The urine should be let out very slowly, and in chronic cases the bladder only half emptied at the first passing. If the gum-elastic fails to pass a silver prostatic catheter should be used with extreme gentleness. When a false passage prevents anything reaching the bladder a long cannula of small bore, or a three-inch hollow needle, can be inserted into the bladder in the mid-line just above the pubes as a temporary measure of relief. After the immediate emergency has been met further over-distension is prevented by one of three measures (always presuming that the patient cannot yet pass urine naturally). (1) Repeated and regular catheterisation may be undertaken twice in the 24 hours. (2) A self-retaining catheter may be passed per urethram. (3) A self-retaining catheter can be introduced by suprapubic puncture. Repeated catheterisation is satisfactory if the doctor or a skilled nurse can do it at stated intervals with aseptic precautions. In acute attacks a self-retaining catheter inserted for a few days may tide over the time until voluntary micturition returns. A Malecot two-winged or four-winged catheter or a Dowse are more satisfactory than the ordinary de Pezzer. The catheter is passed after stretching it on a long German silver probe whose curve is easily adjusted. The probe is inserted into the catheter which is stretched till the wings are flush with the rest of the tube; it is fixed in the stretched position either (with difficulty) by the fingers or (easily) by means of Guyon's device. It is passed into the bladder and released when the stilet is withdrawn. If tolerated well it can be left in from one to seven days when the patient can often pass urine naturally. A spigot should be put in the open end and removed when urine is to be passed. If there is hæmorrhage into the bladder or if prostatectomy is to be done afterwards it is wise to put a self-retaining catheter into the bladder by the suprapubic route. This is done under local anæsthesia by the special trocar and cannula manufactured for that purpose. When called to a case of retention it is impossible for the practitioner to know beforehand what measures may be required, and Mr. Cope demonstrated a prostatic retention-case containing everything likely to be needed in an emergency, made to his requirements by the Genito-Urinary Manufacturing Company. He concluded by emphasising again the danger of emptying rapidly an over-distended bladder.

The Use of the Duodenal Tube in Gastric and Duodenal Ulcers.

Dr. ERNEST YOUNG said that duodenal feeding as a method of treatment of gastric and duodenal ulcers was introduced by Max Einhorn, of America, and has since been employed extensively by several of the leading men in that country. So far as this country is concerned, however, although the duodenal tube has been used for several years past for purposes of diagnosis, its therapeutic value for duodenal feeding in peptic ulcers has been unaccountably neglected. For the last few years Dr. Young had employed this method of treatment in most of his cases of peptic ulcers with better results than from any other form of treatment. Briefly, he said, the method consists in passing a small rubber tube with a perforated metal tip into the stomach, whence the peristalsis of the stomach gradually forces the tip of the tube through the pylorus into the duodenum. A few simple tests determine when the tube is in the duodenum, and feeding then commences, the patient receiving through the tube eight liquid feeds each day at two-hourly intervals, for the whole period of active treatment—18 days. The rationale of the method may be summed up in one word—*rest*. The stomach is out of action; no food and—what is even more important—no acid secretion passes over the ulcer, which is therefore kept free from irritation and given a chance of healing. Feeding is accomplished by means of a small irrigator, the distal end of the attached rubber tube being fitted with a graduated glass nozzle, this nozzle being connected with the proximal end of the duodenal tube when required. The duodenal tube is 47 inches in length, and is marked with black rings at 23 and 30 inches from the tip. When the tube is well into the duodenum the 30-inch mark is level with the teeth, while the tip of the tube is extended some 7 inches past the pylorus, well beyond the usual site of a duodenal ulcer. The proximal end of the tube is 17 inches outside the mouth, and when not in use is closed with a bone plug. The feeds consist alternately of 8 oz. of egg and milk and 8 oz. of Benger's food with a tablespoonful of cream. They should be given at body heat and strained through gauze to prevent any thick particles blocking the tube. After the last feed on the evening of the eighteenth day the tube is withdrawn. The next morning light solid food is commenced forthwith. Breakfast may consist of a scrambled egg, rusks, a little butter, and a teacupful of China tea. For lunch, boiled fish, sieved potato, rusks, baked custard, half a tumblerful of water. For tea, two teacupfuls of China tea and a few plain biscuits. For dinner, breast of chicken, sieved potato, rusks, junket and cream, half a tumblerful of water. One hour before breakfast, and at 10 P.M., a tumblerful of hot water. After a week or so the diet may be gradually increased and varied; thus two eggs (boiled, poached, or scrambled) or thin slices of cold boiled bacon may be taken for breakfast and stale white bread substituted for rusks; tender beef or mutton can also be taken occasionally at lunch and dinner as a change from fish or chicken, and in this way the patient may slowly return to a more or less normal diet within a month. It is well, however, for a space of three months to forbid all fruit, either raw or stewed, and to permit a second vegetable only if passed through a sieve.

Dr. Young reiterated his statement that he had obtained better results from this method than from any other therapeutic measure. Apart from this, he said, the short period required for active treatment is greatly in its favour; the patient's confinement to bed is limited to 18 days, and he may be up and about on a light diet within three weeks. Although he had followed Einhorn regarding technique, he had modified his suggestions regarding diet.

The Significance of Pain in the Lower Extremities and its Treatment.

Dr. WILFRED HARRIS said that persistent or repeated pain must not lightly be dismissed as rheumatic or as functional. The character of the pain may be a clue to diagnosis, as in the lightning pains of tabes; the distribution of the pain around the hip and groin and front of thigh will suggest arthritis of the hip, while pain shooting down the back of the thigh into the calf and ankle is characteristic of sciatica. Sciatic neuritis often, however, accompanies arthritis of the hip. Rheumatic sciatica may be mistaken for the pain produced by malignant growths in the pelvis, the distribution of the pain being identical, though a history of an antecedent breast operation may furnish the clue. Caries of the lower spine or of the pelvis may also simulate sciatica until the appearance of a cold abscess decides the diagnosis. Paroxysms of very severe pain may occur in anterior crural neuritis, of septic or diabetic origin. The pain

is here down the front of the thigh and inner side of the leg, while the knee-jerk may be lost; in sciatica the knee-jerk is unaffected, but the Achilles jerk is lost in a large proportion of cases. Herpes zoster may be a sign of central disease affecting the lower lumbar roots, and tumours of the lumbo-sacral region of the cord may cause perplexing pain until the appearance of anæsthesia, muscular wasting, and alteration of the reflexes. Chronic vascular disease, thrombo-angiitis, and endarteritis obliterans, perhaps complicating diabetes, may cause intense wearing pain, but should be easily recognised by changes in colour and loss of arterial pulsation. Some cases are much benefited by periarterial sympathectomy. Sciatica and many chronic pains may be relieved temporarily and sleep obtained with the aid of linseed and mustard poultices; the mustard must be weak. Acute sciatica may be temporarily much relieved by subcutaneous injection of oxygen along the upper course of the nerve, while chronic cases are frequently cured by two or three intraneural injections of 60 to 80 c.cm. of sterilised saline at the sciatic notch and infra-gluteal fold.

LESSONS FROM LIFE-TABLES.

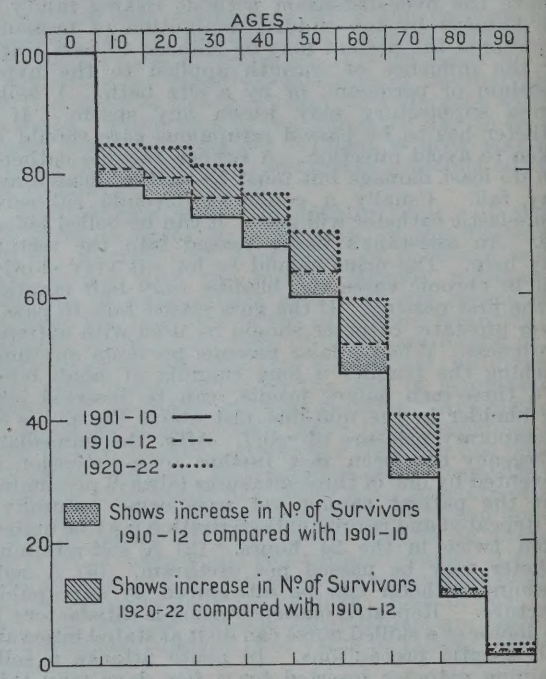
SOME POINTS FROM THE REGISTRAR-GENERAL'S DECENNIAL SUPPLEMENT.

IN a previous article (THE LANCET, Oct. 1st, p. 715) attention has already been drawn to Part I. of this Supplement, which is concerned with national life-tables; and the remarkable increase in expectation of life has been emphasised. On this point a further illustration may be adduced. Taking England and Wales as a whole, the expectation of life at birth for males has increased by 7·09 years, and for females by 7·20 years between 1901–10 and 1920–22. But when the rural districts of the eastern counties are contrasted with the county boroughs of Northumberland and Durham, on the basis of the recent experience of 1920–22, there is a difference of average years of life in favour of the eastern counties of 12·74 years for male children at birth and of 10·43 years for female children at birth. It is evident therefore that the possibilities of large further improvements in average duration of life are far from being exhausted.

The statement of number of survivors at different ages out of a given number born shows for a life-table population the actual number of added years of life at each period of life. For males, Fig. 1 shows the saving in each decade of life when the life-table experience—i.e., the experience of 100,000 males followed from birth to extinction—during 1901–10 is compared with that of 1910–12, and when the experience of 1910–12 is compared with that of 1920–22. There has been gain in years of life at all ages in both the two more recent periods, the gain being greater at every age in 1920–22 than in 1910–12. Furthermore, the greatest part of this gain has been secured at the working years of life from 20 onwards. Even the older ages, from 70 onwards, have shared the gain in vitality, though to a smaller degree. Another view of the same events is illustrated in Fig. 2, in which the difference for any age in probability of surviving ten years is shown in the experience of the three life-tables under comparison. The differences on the scale adopted do not appear so striking as those in Fig. 1, which represent the accumulated advantages at any age from all lower ages; but they are nevertheless very important. The greatest improvement in the prospect of surviving ten years is, as might have been anticipated, at birth. The probability of a child dying in the first year of age has decreased 40 per cent. in 15 years. At age 10 both recent periods show improvement over 1901–10, but there is little difference between 1910–12 and 1920–22. At age 20 there is no marked difference between the three periods. At ages 30, 40, 50, 60, and 70 marked improvements are shown.

From the point of view of public health possibilities great interest attaches to the comparison in the life-table report between the experience of the county

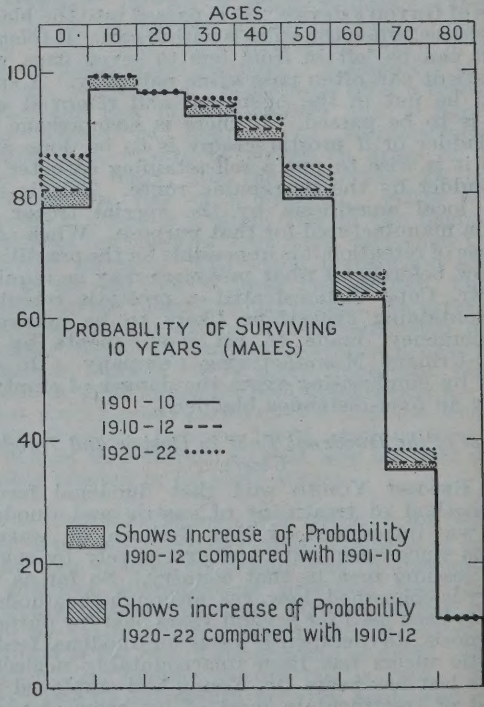
FIG. 1.



Number of survivors (males) out of 100,000 born in accordance with the experience of 1901–10, 1910–12, 1920–22.

boroughs in the counties of Northumberland and Durham and that of the rural districts of the eastern counties of England. The results are shown for males and females respectively in Figs. 3 and 4.

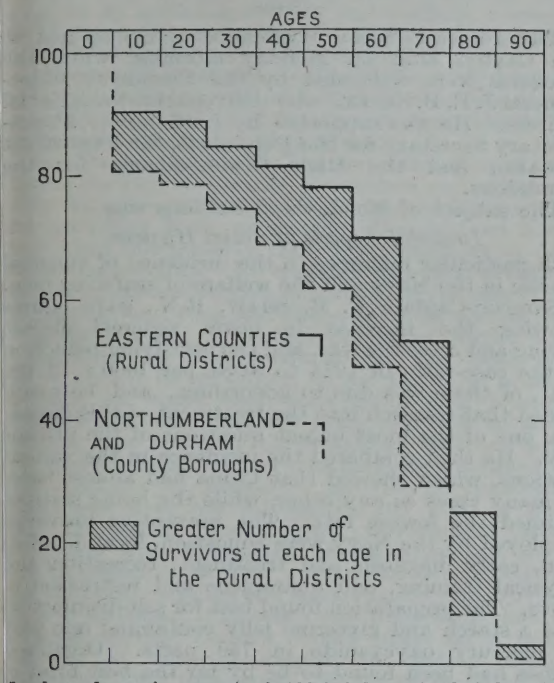
FIG. 2.



In Fig. 3 are given the number of survivors out o 100,000 male children born, according to the experi ence of deaths, in 1920–22, in the urban and rura

parts under comparison. The steps of the lower curve show the experience of favourably placed rural counties. They do not represent the best attainable

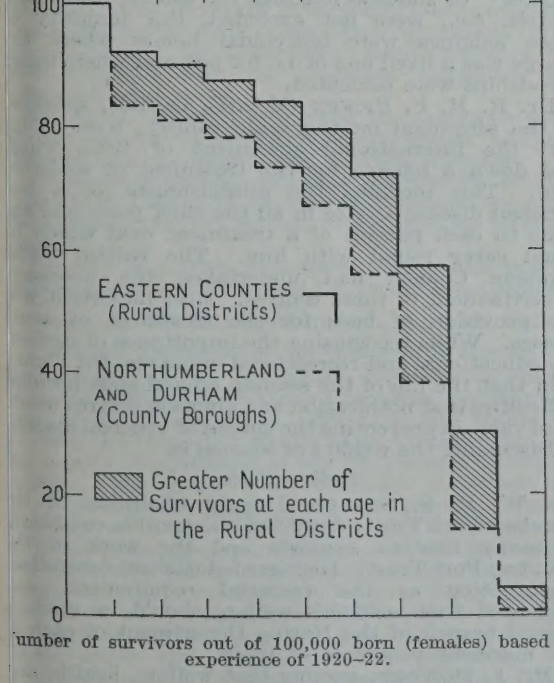
FIG. 3.



Number of survivors out of 100,000 born (males) based on experience of 1920–22.

position, for a large part of this rural mortality at successive ages is preventable—that is, it might, in more favourable circumstances, be postponed to

FIG. 4.



Number of survivors out of 100,000 born (females) based on experience of 1920–22.

later ages. But the steps in the upper curve show for densely populated industrial towns the distance still to be travelled before the relatively favourable position of the rural counties is reached. That much, probably the greater part, of this gap can be closed up is practically certain. Fig. 4 shows that the gap is slightly less for females than for males; but the gap is there, and it is evident that both in domestic life and in industrial circumstances there are insanitary and antisocial conditions which militate against health. There are strong *a priori* grounds for the conclusion that climatic differences are not chiefly responsible; and there is evident scope for more detailed investigation and analysis of the vital statistics concerned, and for the application of the social and sanitary measures of amelioration and prevention which such increased knowledge would make at once applicable.

Sir Alfred Watson has made some interesting observations on the differences between rural and urban mortality. He draws attention to the too neglected fact that occupational and industrial conditions do not suffice to explain the facts, though they are important. The female death-rates in the urban areas specially considered are also high, though not quite so high as those of males, in the areas of excessive mortality. There is needed a further study of the total conditions of mortality in special industrial areas to throw light on this problem.

One elusive element consists in the specially low death-rate of males in rural areas. This is explicable largely by their outdoor occupations, and this explanation throws some light on the relatively less favourable mortality of females in rural districts in early adult life. The greater migration of young women than of young men to towns also bears part in this result.

Another interesting problem arises out of the fact that at the years of life from 18 to 27 inclusive, the death-rate for females is appreciably higher in 1920–22 than in 1910–12. Not only so, but in the central counties of England from ages 16 to 28 the female death-rate in the rural districts was higher than that of the county boroughs. This result must be attributable largely to migration of the stronger women to towns; but inasmuch as tuberculosis contributes some 40 per cent. to the total deaths at these ages, it is likely that more successful and complete methods of dealing with this disease in towns accounts for some of the difference. The problem of tuberculosis in relation to the retardation of reduction of death-rate in early adult life is suggested for further inquiry by Sir Alfred Watson, and it is to be hoped that it will be made the subject of careful statistical investigation.

SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

The Royal Sanitary Association of Scotland.

THE Royal Sanitary Association of Scotland, which has just held its fifty-third annual meeting, began almost with the beginnings of the public health movement in the north. It has steadily increased in membership and influence until to-day it may fairly be called an unofficial sanitary parliament of Scotland. Its council includes representatives of all the grades and varieties of officers engaged in public health administration, central and local, together with unofficial members and representatives of local authorities. The congresses, as a rule, are attended by delegates from every important area and the discussions may fairly be taken as showing an enlightenment of public opinion. Other associations, such as the Health Visitors and the Insurance Committee Associations, have crept up meanwhile and have secured special places on the fringes of the official administration; but none of them has quite the place of the Royal Sanitary Association, which not only discusses policy, but is also an examining body and has an official place in the central examination committee for health visitors.

At the recent Inverness meeting the "popular lecture" was given by Prof. J. R. Currie, who dealt

primarily with pestilence and showed how the advance of hygiene depends ultimately on a growing consciousness of the importance of air, light, and sports, on the facilities for securing them, and on the education of the public. Dr. A. S. M. Macgregor presided over the meeting and added another to the many well-loaded papers contributed to the Association by his predecessors in the office of medical officer of health for Glasgow, Dr. J. Burn Russell and Dr. A. K. Chalmers. It seems to-day barely credible that Sir William Gairdner, Russell's predecessor, was actually the first medical officer of health of Glasgow, so young is this great movement. He was one of the great heart specialists and now, by a very circuitous route, we are coming back through "the prevention of rheumatism" agitation to the point where Gairdner's clinical insight would be of profound value to the health authorities—which in his official days were only beginning to clean their dirty courts and to tackle typhus seriously.

Dr. Parlane Kinloch, M.O.H. for Aberdeen, opened a discussion on local authority hospitals. This is rapidly becoming a living issue, and I notice that one of the planks in the Labour platform at the coming Edinburgh municipal election is a new municipal hospital. This has a special interest at the moment, for it has been announced that the fine hospital at Craigleith, which has been occupied for national purposes ever since the beginning of the war, is to be handed back by the Ministry of Pensions to the parish council next Whitsun. Obviously, this hospital is likely to be a precipitation point for ideas on hospital reorganisation, especially now that reform of the Poor-law is at last passing on to the plane of practical politics.

There was a good discussion on the working of the Tuberculosis Order of 1925. Mr. Trotter (Glasgow) moved that the conference, being of opinion that the Tuberculosis Order did not ensure complete protection to consumers of milk from infection by bovine tuberculosis, resolve to request the Ministry of Agriculture to take steps as may be necessary to educate stock-owners as to the necessity of conducting methods for the eradication of bovine tuberculosis and to inaugurate a scheme for the assistance of stock-owners who would voluntarily adopt eradication methods, the Ministry to provide the necessary facilities. Dr. Gerald Leighton, medical officer (foods), Scottish Board of Health, said that the great majority of local authorities, and especially those in the milk-producing areas, were doing splendid work under the provisions of both the Order and the Dairies Act. So far as he was able to judge, the milk-supply as a whole was improving more rapidly than it had ever done before and was certainly much better to-day than ever it was.

The inevitable discussion on the housing problem showed that Scotland is at last awake to its vastness and importance.

THE "MEDICAL OFFICER."—On Saturday, Sept. 24th, Mr. George S. Elliston, the editor of the "Medical Officer," gave an informal dinner at the Criterion Restaurant to the "Friends of the Journal" to celebrate the 1000th issue of the paper. A large part of the Council of the Society of Medical Officers of Health were present, the Principal Medical Officer of the Ministry of Health, the principal officials of the British Medical Association, and the editors of the medical journals, and all united in congratulating Mr. Elliston on his valuable work, and in wishing him success in conducting the "Medical Officer," and the further literary work which he has in contemplation.

MERSEYSIDE VOLUNTARY HOSPITALS.—A conference of representatives of Merseyside Voluntary Hospitals has been held to consider a development of the system of 1*d.* in the £ contributions. The purpose in view is to meet the needs of the whole of the Merseyside hospitals, and to give the managing authorities an opportunity to invite firms and organised labour to participate more generally in the scheme. Mr. Sidney Lamb, Secretary of the Liverpool Hospitals Council, states that the 1*d.* in the £ scheme is steadily growing—the increase in the council's income being £3500 in excess of the amount a year ago.

THE PROBLEM OF VENEREAL DISEASE.

IMPERIAL SOCIAL HYGIENE CONGRESS,

WESTMINSTER, OCT. 3RD–7TH.

THE Imperial Social Hygiene Congress opened at the Caxton Hall on Monday morning, when the delegates were welcomed by the President, Major-General J. E. B. SEELY, who delivered his Presidential address. He was supported by Lord LOVAT, Parliamentary Secretary for the Dominions, Sir FREDERICK LUGARD, and the High Commissioners for the Dominions.

The subject of Monday's discussions was

Imperial Aspects of Social Hygiene,

with particular reference to the incidence of venereal disease in the Navy and the welfare of seafaring men.

Surgeon-Captain T. B. SHAW, R.N., gave figures showing the increase in naval venereal disease during and after the war, and the gratifying reduction of the case-ratio in 1924 to 81·84 per 1000; 72 per cent. of these was due to gonorrhœa, and he maintained that research into the treatment of this disease was one of the most urgent questions of the present day. He then compared the incidence in the various stations, which showed that China had almost twice as many cases as any other, while the home stations claimed the lowest rate. The preventive measures employed by the Navy were education, local disinfection, early diagnosis and treatment, recreation and physical training, and quarantine and restriction of leave. The preparation found best for self-disinfection was a starch and glycerine jelly containing one part of mercury oxycyanide in 750 parts. Organised games had been found to be by far the best form of physical training, and the Navy Handbook listed no fewer than 57 games which could be played on board with little or no apparatus. He urged the formation of a Mercantile Marine Sports Board on the lines of the R.N. and R.M. Sports Control Board, and described the tremendous improvement in the conduct of sailors since the inauguration of the "Cruising Club," which provided a club building at ports where sailors' institutes and other amenities were not available. In close connexion with this was the "accommodation register" of suitable lodgings for sailors. Although hostels, &c., were not excluded, the majority of these lodgings were individual homes where the charge was a fixed one of 1*s.* for bed and where many friendships were cemented.

Dr. R. M. F. PICKEN (M.O.H., Cardiff), speaking in the afternoon on the same subject, took as his text the international agreement of 1925, which laid down a scheme for the treatment of seafaring men. This included the establishment of a free venereal disease service in all the chief ports and the issue to each patient of a treatment card which he could carry round with him. The British Social Hygiene Council had undertaken the necessary advertisement of these centres. Most important was the provision of beds for the treatment of acute phases. While recognising the importance of perfecting educational and recreational measures, Dr. Picken held that the life of the seaman offered such peculiar difficulties that notification and ablution centres would be of value in preventing the spread of venereal disease.

Discussing the welfare of seamen in

Indian Ports,

Mr. W. R. S. SHARPE (Deputy Chairman of the Bombay Port Trust) described the terrible conditions of many Eastern seaports and the work of the Bombay Port Trust. He regarded efficient centralised organisation as the essential requirement, and suggested that seamen's welfare should be made a special branch of the Marine Department of each of the maritime provinces of India.

Mr. L. BOWDEN, arguing that welfare, health, and port conditions should be a matter for international convention, pointed out that regulations suitable for shore populations rarely suited the seaman. It was

the work of insurance to prevent disease as well as to provide medical care ashore, welfare centres in the ports of the world, and treatment afloat. He suggested that the work should be organised by the League of Nations, a proportionate premium being paid by all maritime nations, and outlined a scheme. Most merchant seamen went to sea during adolescence, when life-long habits were being formed.

Sir GEORGE BUCHANAN outlined the work done and in contemplation, and said that it was essential to provide in every port treatment that should be gratuitous, modern, and continuous.

Dr. DAVID LEES said that the difficulties of combining the two viewpoints, prevention and treatment, were often exaggerated. He emphasised the necessity for providing beds, as seamen often had no homes and could not possibly carry out treatment in doss-houses or lodgings. He criticised the lack of interest shown by medical officers in writing up the case-sheets of seamen, and proposed that the forms should have a space wherein each medical officer might write suggestions for the treatment at the next port. There should be an officer, of the nature of a senior orderly, on board each ship doing long journeys, supplied with the requisite drugs and able to advise seamen how to carry on treatment between ports. At present there was no intermediate treatment for the majority of patients. Sir George Buchanan's conditions were not fulfilled in any port in India, and he hoped the Central Government would coöperate with provincial governments and see to the provision of outdoor and indoor accommodation for European seamen and lascars and to the provision of free salvarsan. It was most important that the General Medical Council should insist on a proper training in venereal disease for Indian medical students; only thus would the quack be eliminated.

Dr. A. O. ROSS described the work in Liverpool; an enormous increase of attendances had followed the extension of clinics to seamen. All incoming ships were visited and the captain asked to provide a list of his men suffering from venereal disease. They were then seen and advised to attend the Seamen's Dispensary; if they did not report within 24 hours they were again visited by the port sanitary inspector. Two-thirds of them attended. The Ship Captains' Medical Diary badly needed revision. Intermediate treatment was certainly most important; salvarsan was a dangerous drug when given irregularly. The syringe should be abolished; many patients had been supplied with an irrigation apparatus and solution for use at sea.

Mr. E. B. TURNER recounted the measures taken by the General Medical Council to ensure adequate training and examination in venereal diseases.

The chair at this meeting was taken by Sir BURTON HADWICK, Company of Master Mariners, owing to the absence, through illness, of Admiral Sir Reginald Tupper.

Tuesday morning's discussion was on the medical aspects of social hygiene, and Dr. DAVID LEES presided.

Colonel L. W. HARRISON read a paper on the

Modern Treatment of Syphilis and its Results.

He commented on the great diversity of opinion as to the amount of treatment required, and the best form of giving the drugs. He then laid before the meeting the tabulated results of an investigation into the results of treatment at the St. Thomas's Hospital Centre. The cases were carefully classified into (1) sero-negative primary, (2) sero-positive primary, (3) early secondary with roseola, (4) late secondary with lenticulo-papular eruptions, and (5) late stages, and were also grouped according to the amount of treatment they received. Serum results showed that there was no appreciable difference between the varieties of "914," nor did bismuth in the early stages show any superiority over mercury. Its action seemed to be that of preventing the tissues from reacting to the spirochæte. His conclusions were: (1) it was most important to start treatment before the serum reactions become positive; (2) the minimum amount of treatment for a sero-negative primary case was 20 injections, totalling 10–12 g. of "914" with mercury or bismuth, and for sero-positive primary and early secondary cases quite 50 per cent. more; (3) bismuth was not a substitute for arsenobenzol in early cases, and its main superiority over mercury lay in its tolerability; (4) the method of administering mercury or bismuth simultaneously with arsenobenzol had advantages over that of following a course of one with a course of the other, especially from the point of view of preventing neuro-recurrences; (5) the coincidence of negative serum reactions with positive cerebro-spinal fluid was so uncommon and the inconveniences attending lumbar puncture were so great that in cases which had run a straightforward and satisfactory course from the serological point of view routine examinations of the cerebro-spinal fluid might safely be omitted.

Prof. F. J. BROWNE, in a paper on the

Management of Cases of Venereal Disease in Antenatal and Postnatal Clinics,

said that in an ordinary clinic the frequency of syphilis was about 7 per cent. In discussing the *diagnosis* he remarked on the difficulty of getting a syphilitic history from multiparæ, on the importance of searching both the patient and her story carefully for suspicious signs, on the value of the positive Wassermann and on the necessity for examining the products of conception. Evidence of syphilis should be sought in the placenta, the cord, and the fœtus. A final test, where others failed, was the "therapeutic"—i.e., giving a patient with a suspicious history a course of antisyphilitic treatment. If this resulted in the birth of a healthy child the case might be regarded as one of latent syphilis.

Treatment should begin as early as possible, preferably before conception, and should continue throughout every pregnancy up to the time of confinement. Drugs should not be combined on account of the danger of kidney damage; arsenic was less dangerous than bismuth and mercury, but in the absence of albuminuria they might be given alternately. The best results followed six or eight weekly intravenous novarsenobenzol injections followed by a month's interval, during which intramuscular grey oil was given weekly. These courses should be continued for at least 18 months, or up to a year after all tests were negative. The only proof of cure was reinfection. *Gonorrhœa* did not often take an acute form in pregnancy. The subacute forms could only be detected by careful examination, in the lithotomy position, of the whole genital tract. The discharge could usually be cleared up in a few weeks by bi-weekly swabbing of the cervix, preceded by cleansing with sodium bicarbonate to remove mucus. Many preparations could be used, but saline solution gave equally good results. An astringent dusting powder should be used on cervix and vagina after the swabbing. Detoxicated vaccines were helpful. Douching had no place in pregnancy and all handling must be very careful. Treatment should be continued until all clinical evidence of disease had been eradicated.

After outlining the treatment of venereal diseases in pregnancy, Prof. BROWNE laid down a number of principles which included a routine Wassermann and the provision of antenatal beds, and a venereal centre in the maternity hospital, with treatment by a woman expert. Under no circumstances should any part of the machinery be labelled "V.D.," and all vaginal discharges should be treated in the clinic. Coöperation with a skilled pathologist, the child welfare medical officers, the general venereal disease clinic, the husband, and a special "follow-up" nurse was essential to the scheme. He advocated the compulsory notification of pregnancy at the third or fourth month.

Dr. MARGARET RORKE urged full arsenical and bismuth treatment for the syphilitic woman in pregnancy. In pregnancies subsequent to a thorough

course, lesser doses might be given, unless the husband had failed to pursue his treatment. A common and tiresome complication of gonorrhœa in pregnancy was the superimposition of an acute *B. coli* infection. Acute urethritis was another dangerous complication; diathermy during pregnancy had given satisfactory results. Where antenatal and baby clinics were some distance from the venereal disease centre it would be helpful if a venereal disease medical officer could attend weekly or fortnightly.

Dr. A. O. ROSS said that intensive treatment (e.g., bi-weekly injections of N.A.B. and bismuth for four to six weeks) gave a high cure-ratio. Cases remained sero-negative for at least three months after it; 98 per cent. of sero-positive cases, infected for two years or less, became negative; and 72 per cent. of those infected more than two years showed a negative result three months after a course of treatment. It was essenital that the treatment be absolutely regular.

Dr. A. CAMPBELL emphasised the necessity of repeated Wassermann tests. He gave 27 doses of neosalvarsan in a year's course; quite a number of patients relapsed three months after the course ceased. In the second year he gave large doses of mercury. Many cases were arsenic-fast to begin with; they might have been infected by a person who had received arsenical treatment. For this reason it was wise to change from one variety of arsenic to another. He was convinced that we were paying the penalty, in our large number of neuro-syphilitics, for the very small doses of mercury which had been in vogue just before the introduction of arsenic.

Colonel HARRISON quoted an investigation into 280 women who showed absolutely no signs of syphilis; 40 of them had proved to have positive Wassermann reactions. One child of twins might be syphilitic and the other healthy. He pleaded for closer liaison between child welfare and venereal departments; where venereal treatment had been provided at maternity centres it had been most successful, and he hoped the practice would be extended. Both he and Dr. Lees drew attention to the great importance of antenatal treatment of gonorrhœa.

Dr. LEES said that syphilis was grossly under-treated in this country, and in India the average amount of treatment given was appalling. Steps should be taken to control bismuth as arsenobenzol was controlled, and to stop the alluring and misleading advertisements of new and untested preparations, the only result of which was neuro-recurrence. Dual therapy was more potent than monotherapy, and he had found it possible to give bismuth and arsenobenzol together to pregnant women. Arsenic and bismuth were better and more tolerable than arsenic and mercury. He urged the importance of routine dental and post-puerperal examinations of all cases. While disappointed by diathermy for gonorrhœal urethritis, he had had good results from protein shock and local vaccine spraying. The urethra was very deceptive and might often be passed as cured when careful bacteriological inspection would reveal an infection.

The Congress Dinner was held at the Hotel Cecil on Monday evening, when Major-General J. E. B. Seely was supported by Sir Burton Chadwick, Sir Walter Willson, Sir William Schooling, Prof. Winifred Cullis, Mr. E. B. Turner, and others. The Minister of Health, proposing the toast of "Health and Empire," outlined the work of the Ministry in promoting imperial health, mentioning the establishment of the London School of Tropical Medicine and Hygiene, and the Post-Graduate Medical School at the West London Hospital. He urged local authorities to realise the true economy of contributing from the rates to the work of the British Social Hygiene Council.

Further meetings of the Congress this week will deal with health in India and the Colonies, and with the educational and administrative aspects of social hygiene.

LONDON MEDICAL EXHIBITION.

THIS exhibition, which opened at the Central Hall, Westminster, S.W., on Oct. 3rd, and which closes to-day (Friday), is the largest that has been held since the inception of these exhibitions in 1905, every available inch of space in the upper and lower halls being occupied, while the attendance, both of home and overseas doctors, has been particularly good. The exhibition may now be said to cover the whole range of medical and surgical treatment, and is a useful means of keeping the busy practitioner and the post-graduate student abreast of the new drugs and appliances which follow in the wake of progressive medical research.

DRUGS AND PHARMACEUTICAL PREPARATIONS.

BURROUGHS WELLCOME AND CO. (Snow Hill-buildings, London) exhibited many scientific products of particular interest and service to the medical practitioner. A feature of the stall was the display of the causative micro-organisms of such diseases as tetanus, pneumonia, leprosy, syphilis, gonorrhœa, influenza, and diphtheria, shown by coloured transparencies, and the various medicaments used in the treatment of the diseases in association. Products which attracted special attention were Anti-Gas-Gangrene Serum (*B. welchii*) for treatment of toxæmia associated with acute intestinal obstruction, and peritonitis with ileus. Three important products for the treatment of leprosy shown were "Moogrol," a mixture of esters of acids of the chaulmoogric series; "Avenyl," for use in leprosy complicated with syphilis; and "Alepol," which marks another advance in leprology, presenting, as it does, a fraction (low melting point) of the total fatty acids of hydnocarpus oil. Salicin, which is of great interest at the moment owing to the fact that it is found to reduce temperature in cases in which quinine, salines, and other methods have failed, was presented as "Tabloid" Salicin gr. 5 and 0·25 g. Another item of interest at this stall was Irradiated Ergosterol, which, in view of the increasing importance attached to vitamin containing products, is of interest in that it offers a method of supplementing "Kepler" Cod Liver Oil in those cases where intensification of treatment is needed.—BOOTS PURE DRUG COMPANY, LTD. (Nottingham), had several additions to their large list of scientific products, a notable feature being a large container of synthetic Thyroxile actually manufactured in Nottingham, with a chart showing the various stages of preparation. Hexyl-Resorcinol Boots, hitherto issued only in capsules, was in tablet form, and Cholumbrin—critically purified Sodium Tetra - Iodo - Phenolphthalein — was exhibited in specially coated capsules, to ensure the highest percentage of positive results. Acriflavine (Boots) and a long series of pharmaceutical products of the antiseptic were prominently displayed, including a sterile emulsion which offers many advantages in surgery over the aqueous solution. Specific treatment products, embracing Stabilarsan, Sulphostab, Bismostab, Gonococcal Vaccines (St. Thomas's), and Thiosta were also shown.—ALLEN AND HANBURYS, LTD. (37, Lombard-street, London), had a very attractive exhibit of dietetic and pharmaceutical preparations among them being Perfected Cod Liver Oil, Liquid Beef, Bynotone, a nutrient consisting of red bone marrow, hæmoglobin, yeast nuclein and malt extract and foods for infants. Particular attention was called to the Iodolysin preparations used in the treatment of rheumatism, rheumatoid arthritis, and other diseases, iodolysin being a soluble compound of Thiosinamin containing 47 per cent. of iodine.—On the stall of OPPENHEIMER, SON AND CO., LTD. (179, Queen Victoria-street, London), was an instructive display of Bipalatinoids, "Oscols" for the administration of colloidal therapy, and "Pulverettes," or powder pills, as well as the Palatinoid form of administering hormone products. Much interest was shown in the "Aeriser" made by this firm, drugs by its means

being introduced into the air passages in a state of extremely fine division—an almost invisible vapour.—Particularly prominent on the stall of SAVORY AND MOORE, LTD. (143, New Bond-street, London), were pictures of children showing the value of the food preparation for which this firm is well known. Other exhibits were Peptonised Cocoa and Milk, Peptonised Milk, and many pharmaceutical products elegantly prepared.—CHAS. ZIMMERMANN AND CO (CHEMICALS), LTD. (9–10, St. Mary-at-Hill, London), drew attention to Asthmolysin (Weiss), a standardised suprarenal pituitary compound for hypodermic use in bronchial asthma, and to Angiolymphe (Rous) for intramuscular injection in tuberculosis.

W. MARTINDALE (10, New Cavendish-street, London) again exhibited a very wide selection of pharmaceutical preparations, prominent among them being "Bromo-Ray" (Sodium Tetrabromphenolphthalein) and "Iodo-Ray" (Sodium Tetraiodophenolphthalein) for use in cholecystography. Attention was also called to Methyl-Aspriodine for inunction in acute and chronic rheumatic affections.—MENLEY AND JAMES (64, Hatton-garden, London) showed Iodex products, including liquid Iodex, and new preparations, including Vitaminose (Vitamin Chlorophyll Compound).—C. J. HEWLETT AND SON, LTD. (35–42, Charlotte-street, and Curtain-road, London), presented a wide range of "Colloigen" preparations—Alumnia, Argentum, Calcium, Iodine, and Sulphur—and many drugs and chemicals, and surgical instruments.—MAY AND BAKER (Battersea and Wandsworth, London), in their large display of pharmaceutical preparations, included Metarsenobillon, a water-soluble arsenobenzene derivative for subcutaneous or intramuscular injections, Thallium Acetate for oral administration for the epilation of the scalp in the treatment of ringworm, and Opacin for cholecystography orally or by intravenous injection, and Ephedrine, whose action is similar to that of adrenalin, but claimed to be more lasting.—Quite a large amount of interest was shown in the stall of H. R. NAPP, LTD. (3–4, Clement's-inn, Kingsway, London), who, among their many medical preparations, showed Cardiazol, a restorative which is claimed to be more efficacious than camphor, and completely soluble in water; Ephetonin, to replace adrenalin in bronchial asthma and hypotonia; Vigantol, 4 centigrammes of which equals 2 gallons of cod-liver oil in antirachitic treatment, was also prominently exhibited, the vitamin D content being particularly emphasised.—BAYER PRODUCTS, LTD. (19, St. Dunstan's-hill, London), had a special exhibit of Vigantol, the new D-vitamin product, which was the centre of a constant stream of visitors.—In connexion with the increasing interest in vitamin D it may be mentioned that a special set of apparatus for vitamin test, as used by the National Council of Medical Research Laboratories, was shown by the TINTOMETER, LTD. (Colour Laboratory, Salisbury).

PARKE, DAVIS AND CO. (50, Beak-street, Regent-street, London) showed a fine selection of pharmaceutical specialties and biological products, prominent among them being Chloretone Inhalant, a combination of camphor, chloretone, and menthol in a base of liquid petroleum, Immunogens, a new series of soluble bacterial antigens, and Sanocrysin (AuS_2O_3)$2Na_3$ for the treatment of certain forms of tuberculosis.—MODERN PHARMACALS, LTD. (2, Calthorpe-street, London), showed Sulfarsenol, and E. H. SPICER AND CO., LTD. (72, Wigmore-street, London), exhibited the Bacillus Acidophilus Emulsion, of which they are the manufacturers, and the "Homburg" pharmaceutical specialties, including Transpulmin, a combination of quinine and camphor in ethereal oils which provides painless means for the injection of quinine, and which is indicated in influenza, bronchitis, and pneumonia; Spirobismol, a chemically soluble potassium-sodium-bismuthyl tartrate and insoluble quinine-iodide-bismuth, finely distributed in an oily suspension, including a small quantity of camphor, for use in syphilis, and Treupel Tablets, an anodyne and antipyretic.—HOWARDS AND SONS, LTD. (Ilford, near London), made prominent the Agotan brand of Phenylcinchoninic Acid for rheumatism, gout, brachial neuritis, neuralgia, and other affections, while Agotan ointment, together with Howard's Standard Ether, was also shown.—GENATOSAN, LTD. (Loughborough, Leicestershire), exhibited Sanatogen, Formamint, Genasprin, Cystopurin, a urinary antiseptic, Nasmint, a germ-killing snuff, and a wide range of vaccines.—SCHERING, LTD. (3, Lloyd's-avenue, London), presented Veramon, an analgesic which relieves pain without inducing sleep, is not habit-forming, and it is claimed to be an efficient substitute for morphia treatment; Medinal, a rapidly acting hypnotic and sedative; Neutralon for the treatment of hypersecretion, hyperchlorhydria, and gastric and duodenal ulcers consequent on hyperacidity, and Atophan a uric acid eliminant.—TETMAL, LTD. (45, Farringdon-street, London), who exhibited their preparation, Tetmal, demonstrated its use as an analgesic and antipyretic, and also called attention to Codlivex, a confection containing the lipoid of the liver, one tablet being equivalent to one tablespoonful of cod-liver oil.—THE BRITISH ALKALOIDS, LTD. (104, Winchester House), staged T.C.P. (Trichlorophenylmethyliodosalicylic acid in H_2O), a non-caustic and non-toxic Germicide, which, in addition to its destructive action on noxious germs, is claimed to have a vitalising action on leucocytes.—BARNOLD, LTD. (7 and 8, Milverton-street, London), had an exhibit showing Tabelle Cerevisiæ Compound (yeast with glycerophosphates) prepared to meet the demand for a standard yeast tablet, and Oracton Tonic Food Squares containing milk with calcium glycerophosphate.—BRISTOL-MYERS CO. (112, Cheapside, London) made prominent Sal Hepatica, an effervescent saline combination containing the principal medical salts which are found in the natural mineral waters of Europe and fortified with sodium phosphate. Ipana tooth-paste containing Ziratol, a hæmostatic antiseptic, was another exhibit of this firm.—J. C. ENO, LTD. (Pomeroy-street, London), showed the well-known "fruit" salt which may be taken during effervescence or after effervescence has subsided.—DIMOL LABORATORIES, LTD. (40, Ludgate-hill, London), displayed Dimol, which, prepared in the form of pulverettes and also in the form of syrup, pastilles, lavage powder, ointment, snuff, dentifrice, and dusting powder, is a bactericide 35 times more efficient than pure phenol. The chemical constitution of Dimol, $C_6H_2(CH_3)_2(OCH_3)OH$, reveals the presence of a phenyl radical, but this is not split off in its passage through the intestine; Dimol is voided with the fæces, unchanged. Dimol has a coefficient of 35·0 and is free from toxicity. It is indicated in the treatment of putrefactive and other bacterial invasions of the intestinal tract.—ICHTHYOL CO., LTD. (18, Adam-street, Adelphi, London), showed their product made from the raw material obtained from quarries at Seefeld in the Tyrol. It is a uniform product with a high sulphidic sulphur content.—JEYES SANITARY COMPOUNDS CO. (Victory House, 99, Regent-street, London) showed various Cyllin preparations; and NEWTON CHAMBERS AND CO., LTD. (311, Gray's Inn-road, London). Izal preparations.—MONSOL GERMICIDES, THE MOND STAFFORDSHIRE REFINING CO. (Distributors, Thomas Christy and Co., 4–12, Old Swan-lane, Upper Thames-street, London) had an attractive exhibit of this new germicide for which high efficiency is claimed, a remarkable freedom for irritant effects common to antiseptics of the phenol type, and low toxicity, together with a high degree of penetrative power. It is put up in many convenient forms, liquid, ointment, lozenges, and so forth.—THE THERMOGENE CO., LTD. (Haywards Heath, Sussex), had a fine display of their medicated wadding.—MANSONS (LONDON), LTD. (101, Hatton-garden), made a particular feature of Lipocithine as a remedy for tuberculosis, anæmia, neurasthenia, and for completing rapid convalescence.

THE HOFFMANN-LA ROCHE CHEMICAL WORKS, LTD. (51, Bowes-road, London), drew attention to their

preparation Allonal (Allyl-isopropyl-barbiturate of pheny ldimethyl-dimethylamino-pyrazolon) a synthetic non-habit-forming hypnotic and analgesic which relieves pain of all kinds and gives sleep, and to Isacen (diacetyl-di-hydroxyphenyl-isatin) a tasteless, odourless, non-toxic aperient, which is agreeable to take and safe and mild in action.—BENGUE AND CO., LTD. (24, Fitzroy-street, London), had an attractive exhibit which included Muthanol, a suspension of bismuth hydroxide and mesothorium bromide in sterile olive oil, a radio-active spirillicide, Euphorian Ampoules, entero-antigens, a polyvalent coliform vaccine, prepared from the intestinal flora, for chronic non-contagious diseases, Arhemapectyl, a new blood coagulant, and Vittel Natural Mineral Water (Grande Source) imported from the spa.—THE SANDOZ CHEMICAL WORKS (5, Wigmore-street, London) called attention to their Calcium Sandoz produce from glucose, which is readily absorbed and assimilated and can be given by the mouth intravenously or intramuscularly. Femergin (ergotamine tartrate) the active specific alkaloid of ergot of rye, Lobelin for the relief of grave respiratory troubles of central origin, and Scillaren, the pure stable cardio-active and diuretic glucoside of squill, were also prominently exhibited.—THE SACCHARIN CORPORATION, LTD. (72, Oxford-street, London), presented their Novocain in powder, tablets, and in sterilised solution in ampoules and bottles. This preparation contains no cocaine.—JOHN MORGAN RICHARDS AND SONS, LTD. (46–47, Holborn Viaduct, London), who are the agents for McKesson and Robins, New York, showed Lactopeptine for digestive disturbances, and Antikamnia, which is analgesic, antipyretic, and anodyne, in powder and tablets.—Among the variety of Collosol preparations prepared by the CROOKES LABORATORIES (BRITISH COLLOIDS, LTD.) (22, Cheniesstreet, London), Collosol Lactalumina (colloidal aluminium hydroxide) was shown and a more recent development, the same preparation with phenolphthalein 4 gr. per ounce, Collosol Lactalumina Laxative. Collosol Cod Liver Oil Emulsion 50 per cent. was another preparation calling for notice.

ANGLO-FRENCH DRUG CO., LTD. (238A, Gray's Inn-road, London), showed special pharmaceutical preparations, Adrepatine, a pluriglandular compound for the treatment of hæmorrhoids and other pluriglandular products, as well as orargol, colloidal gold-silver for general antisepsis, internal and external.—ENDOCRINES, LTD. (72, Wigmore-street, London), in addition to their large display of endocrines, showed a number of standardised endocrine products including Anabolin which has proved successful in the treatment of hyperpiesia, and Paracalcin, a standardised parathyroid available in tablet form. Attention was also drawn to Hepatic Extract for the reduction of high blood pressure. The stall of this firm contained a large number of useful books and brochures dealing with the subject of gland treatment which were at the free disposal of medical men.—ARMOUR AND CO., LTD. (Queen's House, Kingsway, London), had a representative exhibit of endocrines and digestive ferments including corpus luteum substance, orchitic substance, suprarenal crystals, and mixed gland materials.—G. W. CARNRICK CO. (40–42, Lexington-street, London) also showed endocrine remedies. Rythmin for constipation, Mammagen for defective lactation, Viriligen for lowered vitality, Erythogen for anæmia, and Kinazyme for malnutrition being among them. A book on the subject of Organotherapy in General Practice is given free to members of the medical profession by this firm.—THE BRITISH ORGANOTHERAPY CO., LTD. (22, Golden-square, London), attracted attention by a fine display of organotherapeutical products which included "Opocaps" Lymphoid-Adrenal Co. for the symptoms resulting from influenza and infective fevers, "Opocaps" Enterostasin for chronic constipation, and "Opocaps" Plammoid Co. for the nausea and vomiting of pregnancy as well as Evatmine for asthma and urticaria.—REED AND CARNRICK (Distributing Agents: Coates and Cooper, 41, Great Tower-street, London) showed glandular preparations and pharmaceuticals, one of the most prominent of their products being Pancrobilin Brand Intestinal Digestant. Pancrobilin is a physiological product containing dehydrated bile (from pure ox-gall) in combination with the nucleo-enzymes of the pancreas, and is indicated in the treatment of all forms of constipation. Peptenzyme Digestant, which contains all the glands necessary for digestion, also received attention from many inquirers. The firm of Coates and Cooper also exhibited Salvitæ for use in disorders arising from perversions of nutrition, the claim being made that it is preferable to ordinary preparations of lithium and single salines, as the collective action of its several constituents gives a much wider scope of usefulness.

DESHELL LABORATORIES, LTD. (1–3, Brixton-road, London), exhibited in several forms Petrolagar, a palatable emulsion containing 65 per cent. of pure medicinal paraffin and 10 per cent. of prepared agar, which is the emulsifying agent, no fermentative gums or soaps being used.—On the stall of the ANGIER CHEMICAL CO. (86, Clerkenwell-road, London) the emulsion of Petroleum with Hypophosphites bearing this firm's name attracted many visitors.—Liquid paraffin preparations were represented by KAYLENE, LTD. (7, Mandeville-place, London), who showed Kaylene (Colloidal Kaolin), Kaylene-ol—an emulsoid combination of Kaylene and Colonol Liquid Paraffin, and other preparations for eliminating intestinal toxins. The same firm also exhibited Spisbrod, a Swedish health bread which contains 100 per cent. of whole-grain rye.—NUJOL LABORATORIES (Albert-street, Camden Town, London). In addition to Nujol, the well-known intestinal lubricant and Cream of Nujol with Agar, this firm showed Mistol, a combination of menthol, camphor, and eucalyptol in pure mineral oil which, used in an atomiser, brings these medicaments into intimate contact with the mucosa of the nose and throat.

(To be continued.)

Obituary.

CHARLES GEORGE MACVICKER, M.B. R.U.I.

Dr. C. G. MacVicker, who died on August 30th in a Clifton nursing home, of a generalised staphylococcal infection, at the age of 64, had been in practice at Street, Somerset, for 28 years. A native of Londonderry, he studied medicine at Edinburgh University and Queen's College, Belfast, where he took high honours, qualifying in 1891. After that his life was spent in general practice in England, first at Almondsbury, near Bristol, then at Isleham, in Cambridgeshire, and from 1899 onwards at Street. Here he held various appointments, serving as medical officer to the Street District of the Wells Union, and to the Abbey Grange School for mentally deficient children. At the time of his death he was also senior medical officer to the Butleigh Hospital. One of his most important activities was in connexion with the Somerset County Nursing Association, of which committee he was a member from its foundation. He was vice-chairman to the Parochial Church Council, a vice-president of the Church of England Men's Society, and of the Ringer's Guild, and the moving spirit in many other of the activities of the church. He was also a council school manager, served as a magistrate for some years, and as a member of the Somerset Archæological Society took a close interest in county antiquities.

A colleague writes: "Dr. MacVicker was not only a professional adviser to his patients; he was their friend, as he showed both in his kindly and solicitous care for their comfort and in his determination to give to everyone, no matter their social status, the fullest resources of his profession. Attractive in person, he looked a good deal younger than his age and had an air of kindly interest in the matter

and, and a full share of the conversational aptitude f his native land, that made him a delightful com-anion. He was a faithful and loyal friend."

In 1895 Dr. MacVicker married Marion Churchill hurchill, eldest daughter of the Rev. E. B. C. hurchill, sometime vicar of All Saints, Portsea. Of heir two surviving sons, the younger is a medical tudent.

NEWCOME WHITELAW BOURNS, M.D. BRUX.

Dr. N. W. Bourns died on Oct. 2nd at Wincanton, fter an illness of nine months. He was born at arrick-on-Shannon in 1852, and after studying at t. Bartholomew's Hospital became M.R.C.S. Eng. n 1879. At St. Bartholomew's he learnt from the enior anæsthetist, Mills, the administration in equence of nitrous oxide, ether, and chloroform, hich he adopted in hospital and private work with dmirable success and remarkable safety to patients. fter settling in South Kensington he was appointed næsthetist to the Cancer Hospital, and in 1887 ecame the first regular anæsthetist to Westminster Iospital. With these duties he combined private ractice, and his pleasing manner and address were ighly appreciated by his many patients. On etiring Dr. Bourns joined some old friends in Somerset-hire, where in the Blackmore Vale he had scope or his hobbies, particularly gardening and shooting. ome time ago an unfortunate motor accident laid im by for a year, but he recovered to enjoy life again.

WILLIAM NEWLANDS CLEMMEY, M.R.C.S. ENG.

Dr. Clemmey, who died suddenly on Sept. 27th t the age of 58, came of a family long established in Bootle, his father, Sir William Clemmey, having been wice mayor of the borough. As a student at Univer-ty College, Liverpool, he distinguished himself in natomy and surgery, and after service as house rgeon was, in 1896, appointed honorary surgeon at ie Bootle Borough Hospital. This post he held ll the day of his death, but it was not as a ecialist in surgery that Dr. Clemmey found his ief work, for he also engaged in general practice, hilst the number of his professional appointments owed how wide his interests were. He served on ie council of the Liverpool Medical Institution and ok a warm interest in everything that made for the elfare of his medical colleagues. Always a hard orker and rarely giving himself a holiday, Dr. lemmey latterly found his health failing and was mpelled to give up much of his public work. This as especially regrettable, as he had been an admirable ample of the professional man who is also a leader civic life. Spending many years on the town uncil and on the board of guardians, he was always spected for his open sincerity, and latterly he had en made a justice of the peace.

Dr. Clemmey leaves two sons, of whom one has ntered the medical profession.

ALEXANDRA DAY.—The collections on Alexandra ay in London last June amounted to £48,150, to which id to be added £1111 collected by steamship companies id £3615 of other income, making a total of £52,876. After ducting expenses there was a surplus of £44,536, which as £2619 more than last year.

NORFOLK AND NORWICH HOSPITAL.—A scheme has en drafted by which persons of limited income can be ceived as paying patients in this hospital. The plan rns upon an insurance scheme, the benefits of which may secured by means of a yearly premium of £1 10*s*. Each ember will be entitled to free in-patient and certain out-tient treatment for himself and his wife, and for children der 16. Those who join the scheme before Dec. 1st ll be entitled to treatment as soon as the department is ened. The benefits of the department are not to be ited to the insured, but if there is sufficient accommoda-n any person whose income falls within the prescribed its will be received at a stated weekly charge.

Public Health Services.

POLIOMYELITIS IN KINGSTON-UPON-HULL.

Dr. W. Allen Daley, medical officer of health for Hull, has presented to his health committee an interim report on the outbreak of acute anterior poliomyelitis and polio-encephalitis in the county borough during the last three months. The first case was notified on August 2nd, the onset having occurred on July 27th; the next notification was received on August 15th, and the third on August 16th, the onset having been on August 7th and 9th. There followed two notifications on August 17th, and one each on August 19th and 20th, all these notifications were belated, the onset having been on July 13th, 24th, and 30th, and August 3rd. This made six notifications for the week ended August 20th; in the following week seven notifications were received. On August 29th a circular letter was sent to medical practitioners in the area informing them of the prevalence of the disease, with the result that a number of cases of some weeks standing were notified within a few days. After that the lag between onset and notification was somewhat less, except for the cases where no doctor had been in attendance owing to the mildness of the onset, and notification was only made after a practitioner had been consulted because of paralysis or when a medical officer of the health department called on hearing from a health visitor or school nurse that a child had suddenly developed weakness of a limb.

Up to Oct. 1st, 88 notifications were received. In three cases the diagnosis has not been confirmed; the date of notification and onset of the remainder is as follows:—

Week ended—	Onset.	N.R.	Week ended—	Onset.	N.R.
July 16th	3	—	Sept. 3rd	11	17
,, 23rd	3	—	,, 10th	12	19
,, 30th	3	—	,, 17th	8	14
Aug. 6th	4	1	,, 24th	8	14
,, 13th	11	—	Oct. 1st	1	7
,, 20th	8	6		—	—
,, 27th	13	7		85	85

N.R. = Notification received.

The usual onset has been a complaint of headache and nausea; often with pain in the back of the neck and occasionally sore-throat. The very young children went off their food and their legs, if they had begun to walk, and showed the symptoms associated in the lay mind with "teething." The weakness of a limb was often not noticed until the child had recovered its usual health and started to walk again; the mother then observed that one of the legs was being "dragged."

Three cases proved fatal—one from the acute ascending type of the disease; the second, a man of 33 years, after an illness of three days' duration in which he showed paralysis only a few hours before death; and the third from the cerebral type of the disease. During the past two weeks an increasing number of very mild cases has been discovered, with definite paresis clearing up entirely (so far as can be ascertained by ordinary examination) within a few days. No relationship has been established between the severity of the onset and the degree of paralysis.

The cases have been distributed uniformly throughout the city; there is no special incidence among the very poor, nor are those who are particularly well-housed and well-fed exempt. One group of three patients who played together has occurred, and in one house a second child developed the disease 14 days after the onset of the first, and four days after the removal of the first case to hospital. One of the early cases is known to have been in contact at a neighbouring seaside resort with a case from Lancashire which subsequently proved fatal. Otherwise no contact between the cases and no sources of infection nor "carriers" have been discovered. The possibility of a contaminated milk-supply was negatived early in the outbreak.

The ages of the 85 cases are as under :—

Under 1 year	3	
1 year and under 2 years	16	60*
2 years " " 5 "	41	
5 " " " 10 "	15	20†
10 " " " 15 "	5	
15 " " " 20 "	2	
20 " " " 30 "	2	
30 years and upwards	1	
	85	

* Under 5 years. † Aged 5 to 15 years.

The muscles involved in the 85 genuine cases have been those of: one arm, 9; both arms, 1; one leg, 39; both legs, 25; one leg and one arm, 2; both legs and one arm, 3; both legs and both arms, 1; leg and face, 1; face, 4.

As it is unknown how long the infection remains in the throat, it was necessary, Dr. Daley writes, to decide what measure of isolation should be required. This period was fixed, without any special reason, at five weeks, and all patients were isolated at home or in hospital from the time of notification until five weeks from the onset. Patients and house contacts were advised to use throat gargles of 1 per cent. hydrogen peroxide or 1 in 500 permanganate of potassium, and this was supplied free of charge on application.

The Wassermann reaction of a convalescent adult patient being found negative, his consent was obtained to the use of his blood for the preparation of serum for the treatment of acute cases. As it was unusual to receive notifications until after the onset of definite paralysis, when serum would presumably be of little or no value, its value has not been ascertained.

Thirty-eight cases were admitted to the city hospital where in most cases the cerebro-spinal fluid was found to be under increased pressure, clear but showing an excess of globulin and of lymphocytes. The limbs were put up in the neutral position; gentle massage and muscle training were not started until all the tenderness had gone. On discharge from isolation, provision is made for their treatment under the orthopædic scheme; actinotherapy will also be used at the municipal light clinic. The improvement in the movement of the limbs as a result of simple rest and prevention of stretching has been very striking.

If, Dr. Daley concludes, the "carrier" theory of infection in this disease is correct, it is necessary to assume that during the past few months there have been many "carriers" in the city, and that the proportion of those exposed to infection who succumb to it is very small.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED SEPT. 24TH, 1927.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 125 (last week 126); scarlet fever, 1958; diphtheria, 1149; enteric fever, 91; pneumonia, 637; puerperal fever, 37; puerperal pyrexia, 108; cerebro-spinal fever, 9; acute poliomyelitis, 39; acute polio-encephalitis, 4; encephalitis lethargica, 12; dysentery, 1; ophthalmia neonatorum. 103. No case of cholera, plague, or typhus fever was notified during the week.

Eighteen cases of poliomyelitis and polio-encephalitis (taken together) were reported from the East Riding of Yorkshire, 14 of them from Kingston-upon-Hull (only 7, as noted above, in the subsequent week), the others from the rural districts of Beverley, Patrington, and Sculcoates. It must be some years since so low an incidence as 12 has been reported for encephalitis lethargica.

Deaths.—In the aggregate of great towns, including London, there was no death from small-pox, 3 (0) from enteric fever, 10 (1) from measles, 4 (0) from scarlet fever, 15 (4) from whooping-cough, 33 (5) from diphtheria, 92 (9) from diarrhœa and enteritis under two years, and 42 (11) from influenza. The figures in parentheses are those for London itself. The number of stillbirths registered during the week was 264, including 38 in London.

Correspondence.

"Audi alteram partem."

THE BROAD ROAD OF HEALTH

To the Editor of THE LANCET.

SIR,—Thomas Carlyle in a famous dictum labelle the majority of mankind as fools, Sir Thomas Hord puts a point to this in saying that all but a few foo can secure health.

The perfect human being (physically and mentall does not exist. All of us fail more or less to reach t standard of perfect health—most of us fail lamentab —a very large proportion are suffering from organ disease, functional disorder, deformities, maldevelo ment, and malnutrition. We are, according to S Thomas Horder, all in the same category—fools the victims of mischance. We have failed to "contr the car," or to take sufficient care "at the cross-roads we have driven the machine too fast or we have h no luck. True, the road has been broad and t margin of safety in some respects wide enoug Nevertheless, Nature is actually antagonistic health, since all life is a prolonged struggle to mou the environment, or to adapt the organism to Fortunately, Nature forgives much and our reserv are often considerable.

But the net result, so far as civilised humanity concerned, is a hideous array of repair shops a mechanics, lining the roads of life and worki overtime. Sir Thomas Horder has cleverly omitt these features of the landscape from his Utopi picture. Is not the explanation to be found in t appalling ignorance on the part of the drivers of the ca of the first principles of the mechanics, requiremen and driving of their machines? Sir Thomas Hord evidently does not think so since he does not inclu a knowledge of the art of living as a means to safe He is apparently of the opinion, as are also so scientists, that unless the layman can be suppli with the whole scientific truth down to the l detail, and unless the whole body of scientific opini is in agreement as to the truth to the utterm detail, no information should be given at all. T suggestion that the Medical Research Council sho institute a special inquiry into the bread quest was met with the reply that since "Vitamin possibly consisted of several vitamins and that si some expert had discovered a toxic element in germ of cereals, it was not desirable to commend particular article of food to the public.

Meanwhile, a very large section of the public suffering from malnutrition and are totally ignor of the elementary principles of dietetics. Sir Tho Horder thinks they will be content if we refer th to his stalwarts and tell them that the physical fitn of these strenuous fellows is a "spontaneous acqu ment." Compared to the dangers of such reaction teaching any over-enthusiasm as to the virtues wholemeal bread or an over-estimation of the res of a faulty dietary are but trifles.

I am, Sir, yours faithfully,

S. HENNING BELFRAG

Gloucester-place, W., Oct. 3rd, 1927.

CANCER, ADRENALIN, AND IMMUNITY

To the Editor of THE LANCET.

SIR,—Dr. Lumsden makes the statement in letter on Cancer and Adrenalin (THE LANCET, Oct. p. 733) that the whole trend of his recent work indic that "by appropriate local treatment an ac immunity can be induced which is not local *general*," so that the animal is "immune aga subsequent inoculations of the same tumour every part of its body." I am under the impres that it has been generally known for over 20 years a tumour undergoing regression from various ca produces an immunity which is not local but gene

Dr. Lumsden cannot appreciate the significance of his wn statement when he says that "the two drawings of icroscopic specimens he (Cramer) published are such s might be obtained from certain areas in untreated mours and are to my mind quite unconvincing." his very similarity is emphasised in my paper at nsiderable length (pp. 62 and 63). The paper is, fact, entitled "The Action of Radium on Trans-lanted Mouse Tumours and its Relation to the pontaneous Arrest of Their Growth." It is stated ere that where regression is induced experimentally the tumour shows in an exaggerated form the ppearances met with in more localised areas in a nsiderable proportion of the tumours propagated." he evidence presented is interpreted as showing at the regression of a tumour under the influence radium and of adrenalin is not due entirely to a xic or lethal action on the tumour cells, but that important factor in the regression is the exaggeration a process which occurs spontaneously in a more calised form and which consists in the proliferation the connective tissue elements of the stroma. he trend of recent work on the therapeutic action radium is in the same direction.

It was in the course of these experiments that the henomenon of "immunity" was observed by me, nd I am, therefore, not likely to underrate the value this observation. The part played by the developing mmunity in the process of regression was studied in nsiderable detail by B. R. G. Russell and by W. H. oglom.

This may be a suitable opportunity to summarise ery briefly the main facts which have been established ncerning this phenomenon of immunity.

1. If a tumour regresses either spontaneously or the result of experimental applications, the animal resistant against subsequent transplantation of e same tumour and to a lesser extent of other mours. This resistance to transplantation is now nerally called "immunity."

2. The same condition can be induced by the jection of normal tissues, especially embryonic sues.

3. If a transplanted tumour has been established fore immunity is induced, the established tumour nnot be made to regress. With some strains a tardation of growth has been observed.

4. This condition of immunity does not protect animal against the genesis of a new spontaneous mour, nor can an animal with a spontaneous tumour rendered immune against the experimental nsplantation of its own tumour.

5. J. Fibiger has recently shown that animals which ve been rendered immune by the repeated injection normal tissues will develop tar tumours quite as dily as normal non-immune animals. But the tastatic spread is distinctly inhibited in the immune imals, so that in his experiments the number of mune animals with metastases was approximately e-half of the non-immune animals with metastases.

I am, Sir, yours faithfully,

W. CRAMER.

Imperial Cancer Research Fund, London, W.C. 1,
Oct. 1st, 1927.

THE LATE PROF. ADRIAN STOKES.

To the Editor of THE LANCET.

SIR,—With reference to the obituary notice of the e Prof. Adrian Stokes which appears in your issue to-day, several statements appear therein which fortunately have no historical basis as to fact, and justice both to the living and the dead I think ould be corrected.

With regard to mobile laboratories, the construction the first of these was undertaken by the Medical partment of the War Office directly after the tbreak of war in August, 1914. In that year it nctioned in battle areas north of the *Lys* and reafter was entirely responsible for the bacterio-gical investigations in Belgium of all cases in the tbreak of typhoid fever among the Belgian civilian habitants in the winter of 1914–15 in the zone occupied by the British Second Army and also by the French Army on our left flank. This laboratory was in charge of a Territorial officer who had been seconded from the 3rd City of London Field Ambulance who, later, was appointed to act as my sanitary officer and was given special authority to carry out all necessary measures for controlling and suppressing the epidemic by the Belgian Ministry of the Interior. This epidemic was considered to have terminated by the beginning of June, 1915.

The second laboratory—a converted motor caravan—was furnished by the Lister Institute who, within a week of the declaration of war, had made a collective offer of its workers for service under the War Office followed by an offer of a mobile laboratory, the latter being immediately accepted. This laboratory was in charge of Major S. D. Rowland and proceeded to France, being stationed at General Headquarters at St. Omer where it remained until its transfer to the Second Army when it was attached to No. 10 Casualty Clearing Station at Remy Siding and opened out for work early in July, 1915. It was upon the occasion of this transfer that Adrian Stokes first came to the Second Army, he being attached to Major Rowland's mobile laboratory and acting as his assistant until 1916, when Rowland was transferred at his own request to Etaples to investigate cerebro-spinal fever, subsequently contracting the disease there from which he died.

My appreciation of Stokes's services and ability was such that I had no hesitation in securing his appointment as commanding officer to succeed Rowland, this being, in fact, Stokes's first command of a mobile laboratory. (Owing to their increasing numbers, it became necessary, in 1915, to number serially the mobile laboratories. In this way the first War Office built laboratory became known as No. 4 Mobile (Hygiene) Laboratory and the Lister Institute converted caravan as No. 1 Mobile (Bacteriological) Laboratory.)

By this time some five mobile laboratories had become connected with the Second Army, and I would here say that the repeated successful detection and isolation of typhoid (and other) carriers was regarded by all of them without exception as an ordinary laboratory achievement.

In justice to all concerned I would like to make it clear beyond all doubt that Stokes was not transferred to the Second Army until *after* the termination of the epidemic. He took no part, officially or otherwise, in the operations conducted by the medical service of the Second Army, under my direction, for dealing with the typhoid epidemic amongst the civil population of Belgium which occurred in the winter of 1914–15.

The history of this epidemic remains to be written; it is the story of a grave and widespread outbreak—numbering thousands of cases—amongst the civil population of a foreign country in the occupation of allied (and British) troops in an intensely active war zone in which British medical officers were given the honour and the responsibility for conducting the whole of the operations necessary for coping with the disease. They did so successfully, and I would like to take this opportunity to make an appeal to all in possession of relevant documents and records (whether copies or originals) to communicate with me in order that some organisation might be set up for duly recording its history and noting its clinical and epidemiological lessons.

I am, Sir, yours faithfully,

ROBERT PORTER,
Maj.-Gen. (ret.); formerly Director of Medical Services, Second Army, B.E.F.

27, The Avenue, Beckenham, Kent.
Oct. 1st, 1927.

*** We have submitted Sir Robert Porter's letter to "J. A. R.," the author of the obituary of Prof. Stokes, who has sent us the reply which follows:—

"I must emphatically appeal against Sir Robert Porter's contention that the obituary notice of the late Adrian Stokes, which appeared in THE LANCET,

contained 'statements . . . which have no historical basis as to fact.' Others can bear out my narrative with regard to Stokes's discovery, essentially through his own enterprise and initiative, of the typhoid carrier in the Guards' Brigade in 1914, thereby anticipating, in fact, the functions of a mobile laboratory which was not apparently then availab e to do the work. I do not imply that Stokes instigated the creation of mobile laboratories, but merely that he 'anticipated the idea.' Nowhere do I suggest, as Sir Robert Porter seems to think, that Stokes's work in the Belgian epidemic was done during service with the Second Army. In fact, it is explicitly stated that Stokes took charge of the mobile laboratory at a later period. Nevertheless, as I worked intimately with him at the hospital at Malassise near St. Omer to which some 800 Belgian civilian cases of typhoid fever were evacuated, and as I witnessed from day to day the ready enthusiasm with which he coöperated with the officers of the Friends' Ambulance Unit and the Sanitary Officer of the Second Army, and the thoroughness with which he and his colleague, the late Cecil Clarke, worked in their laboratory to ensure that no civilian carriers should be returned to the occupied areas to cause further danger to the troops—for these reasons I do feel justified in my remarks concerning Stokes's participation in this not unimportant episode of the war. I am careful to refer to him as 'an unofficial liaison officer' for at this period, as well as later at the Casualty Clearing Station, he was (although employed in a specialist capacity) continually stimulating all those with whom he came in contact, whether civilian or military, in their joint task of helping to protect the British forces from infectious disease. The hospital at Malassise was not under the medical services of the Second Army, but it played a very important part in dealing with the typhoid epidemic amongst the civilian population in the early months of 1915. No history of that epidemic, which as Sir Robert Porter says still remains to be written, would be complete if it omitted to record in some way the valuable services of the bacteriologists at the Malassise Hospital, a unit working under the ægis, if I remember rightly, of General Headquarters. I believe the commanding officers of the hospital would be only too glad to support this opinion and hope that Sir Robert Porter will revise his verdict as to the historical inaccuracies of one who had the privilege of living in the same mess with Adrian Stokes for more than two years both before and during his service with the Second Army."

MOSQUITO CONTROL: AN HISTORICAL NOTE.

To the Editor of THE LANCET.

SIR,—To Dr. J. Balfour Kirk, medical officer of health, Port Louis, Mauritius, I owe a copy of a very interesting and thoughtful book entitled, "A Voyage to the Island of Mauritius (or Isle of France), the Isle of Bourbon, and the Cape of Good Hope, &c. With observations and Reflections upon Nature and Mankind." It was written by a French officer and my copy is a translation from the French by John Parish and is dated 1775. It takes the form of a series of letters written to friends of the author. On looking through it I came upon the following note in Letter XXV. :—

> "It has been attempted, but without success, to bring frogs here, that they might eat the eggs which the mosquito lays upon the surface of the standing waters."

At this time the edible freshwater fish, the gourami, had been imported into Mauritius from Batavia and the Chinese goldfish had also been introduced, presumably for ornamental purposes. For mosquito control, however, as the passage indicates, recourse was had to frogs, and it was not until much more than a century later that "millions" fish were brought to the island to cope with the larvæ of *Anopheles costalis* or *gambiæ*, as it is now called, and also, incidentally perhaps, for their existence was not at that time known, with those of *Anopheles funestus*, the mosquit discovered in Mauritius by Mr. Malcolm MacGreg during his entomological survey of the colony 1922–23. I am, Sir, yours faithfully,

ANDREW BALFOUR,
Director, London School of Hygiene and Tropical Medicine.

Oct. 4th, 1927.

POOR-LAW HOSPITALS.

To the Editor of THE LANCET.

SIR,—The correspondence on the above subject h been most interesting, especially the letter of D H. Bailey in your issue of Sept. 3rd, in its advocac from actual experience, of the view that an infirma benefits if its superintendent is allowed a limit outside practice. I would suggest, however, that su aspects of the infirmary as its facilities for surger research, and post-graduate work, are subsidiary the question of future status and policy. This suggest is the main issue, going to the root of t whole problem. The developments of recent yea would all seem to justify a progressive policy for t infirmaries, which implies a definite break wi tradition. Undoubtedly and of necessity with su a change, professional skill and experience as distin from purely administrative ability would rece greater recognition—although a combination of t two will probably be always the most desirable while it will be recognised in time as a function of t infirmary to help in teaching, research, &c., accordi to its scope.

Dr. Bailey, in the letter already referred to, aft describing successful efforts to popularise a particu infirmary, adds: "Of course, I am quite aw all this is illegal"! This is a cogent example of t anomalies under which the Poor-law infirma functions to-day.

I am, Sir, yours faithfully,
F. J. O'DONNELL, F.R.C.P.I.

Dublin, Oct. 3rd, 1927.

MISLEADING QUALIFICATIONS.

To the Editor of THE LANCET.

SIR,—Is anyone entitled legally or ethically to t designation of F.R.C.S. without specifying the Ro College of Surgeons of which he is a Fellow unl indeed, he be a Fellow of all three Royal College This point appears to be of ethical importance view of the countenance given by the Representat Body of the British Medical Association (see T LANCET, July 23rd, 1927, p. 188) to the publicat of names and qualifications of the medical staff therapeutic institutions. In the annual report o cottage hospital outside London, issued to the l public, qualifications of the medical staff are publis and certain of the staff have gained much public este in comparison with the others by being designa F.R.C.S., as are so designated the London consulta attached, without any specification as to their Colle the consultants only are Fellows of the Royal Coll of Surgeons of England.

I am, Sir, yours faithfully,
ETHICS

Sept. 24th, 1927.

CIVIC HONOUR FOR A MEDICAL MAN.—Dr. Rob de la Poer Beresford, of Derwent Grange, nr. Oswestry Sept. 22nd received the honorary freedom of Oswestry a scroll contained in a silver casket, in recognition o services as medical officer of health for Oswestry fo years, and as Mayor of Oswestry for two years—in and 1910.

INNOVATION AT MANCHESTER INFIRMARY.—Manchester Royal Infirmary was open for inspectio the afternoon of Sept. 30th for the first time in its history large crowds took advantage of the occasion to visit X ray department and the operating theatres, whilst n ex-patients revisited the scenes of their recovery. N and officials acted as guides and showed the visitors work carried on in the infirmary.

Medical News.

ST. GEORGE'S HOSPITAL.—The annual dinner of the edical school was held on Saturday, Oct. 1st, at the Hyde ark Hotel, Sir Humphry Rolleston, consulting physician to ie hospital, and Regius Professor of Medicine, Cambridge, residing. The toast list was brief, but good speeches were rovided. The toast of "Prosperity to the School" was roposed by the Chairman, who naturally laid stress on the d association between his University and St. George's ospital, while he pleased his audience by a hearty recogni- on of the valuable part which games play in corporate aining and by special words of commendation for the student hlete. The toast was replied to by the Dean, Dr. Anthony eiling, who was able to report general progress as shown y a good entry, and a high percentage of success in examina- ons during the past year. He considered that it did not evolve upon him to give the details which usually came om the treasurer as to the financial position of the hospital, it he was able to state that, though there was ample scope the conduct of the hospital for the intervention of a illionaire, the pecuniary position had improved; and he rticularly desired his audience to understand that no ovement, either now or contemplated in the future, would ndanger the full accommodation of a first-class clinical edical school. The toast of the Chairman's health was oquently given by Dr. J. S. Collier, who in the course of umerating Sir Humphry Rolleston's many claims upon the miration and gratitude of St. George's Hospital, said that had been a pioneer in a remarkably useful piece of educa- onal work, when he instituted his series of informal lectures pathology, to which all-comers were admitted without es. Sir Humphry Rolleston briefly replied.

ST. MARY'S HOSPITAL.—The annual dinner of st and present students of St. Mary's Hospital Medical hool was held at the Connaught Rooms, London, on turday, Oct. 1st, when there was a large gathering of en and women students, and the invited guests included e Mayor of Paddington, Air-Marshal David Munro, and ce-Admiral Arthur Gaskell, R.N. Dr. Wilfred Harris, o presided, remarked that the hospital had always suffered m scarcity of beds, now to be relieved by the extension progress and the exploitation of the island site recently quired. Small wards for paying patients of moderate ans were urgently needed. They would be a good thing the medical school, they would provide a number of id appointments, and be of real service to the practitioners ng the hospital. His address was sprinkled with amusing ries of early hospital days and humorous maxims. Mr. R. Prideaux, chairman of the Hospital Board, who lied to the toast of "The Hospital and Medical School," d that a number of beds would be available in the course the present month, and final completion was expected April 30th next, when it was hoped their Majesties would en the building. Two new operating theatres, 46 additional ls (making 350 in all), would bring the hospital into line h other metropolitan teaching hospitals. The island , purchased at a cost of £65,000, to come into their session in November next, would safeguard for all time future of St. Mary's. Dr. C. M. Wilson, who as Dean the Medical School also replied, recounted the sorrows a dean in balancing a budget, and dwelt on the advantages the medical student of a school of moderate size, in which re was far more chance of securing a house appointment. gave some figures to show that scholarship and athletic wess are not antagonistic, and concluded with recom- nding St. Mary's as a school which had grafted on the uliarities of the smaller school the academic and university antages of the larger school. The toast of "The Chair- n" was proposed—from a wealth of local knowledge ich was warmly applauded—by Mr. D. C. L. Fitz- liams, and Dr. Harris brought the more formal proceedings he evening to a close with a neat little speech of gratitude l appreciation.

ST. BARTHOLOMEW'S HOSPITAL.—The Annual Old dents' Dinner of the hospital was held on Monday, . 3rd, in the Great Hall of the hospital, Dr. Morley tcher, the senior physician, presiding over a large mbly of St. Bartholomew's men and their guests. re were no speeches, but the chairman, in a short address, iewed recent events as they affected the medical college t the prosperity of the hospital. As proving the iquity of the college, he indicated that some 250 years the formation of a library for the use of the authorities l the students was recorded, while the annual dinner, ore recent institution, he considered to have sprung out he hospitable habit displayed by certain members of the who gave private dinners at the opening of the new ion. But there was evidence that in 1840 a regular ner was attended by the staff and students after an opening address had been given. Later, in 1862, an official notice appeared in the *Times* that an old students' dinner would be celebrated at the famous Albion Tavern, after which the function became annual; and he mentioned that the present senior consulting physician to the hospital, Sir William Church, now in his ninety-first year, had attended some 60 annual dinners. Dr. Morley Fletcher then made the announcement that the new surgical block, so long projected, was now in course of actual construction on the site of the old Christ's Hospital; it was planned, he said, to consist of five wards accommodating 250 patients. In speaking of the changes brought about by the past year, he referred to the deaths of Dr. Claye Shaw, for so many years lecturer in the college on psychological medicine, of Mr. Alban Doran, Prof. Strangeways, and Sir Arthur Shipley, once a student of the school. All, he added, would deeply regret Sir Frederick Andrewes's resignation of the post which he had held so long and with so much distinction. They now possessed, he said, three new professors at the school, W. E. Le Gros Clark, Hamilton Hartridge, and E. H. Kettle, respectively in anatomy, physiology, and pathology, and to these he extended the welcome of the meeting, while he congratulated one of their students, Dr. Burt White, on gaining the gold medal for obstetrics in the University of London. He concluded by saying never had better opportunities been offered to students by the college, though the financial burden was very serious.

MIDDLESEX HOSPITAL.—The annual dinner of past and present students of Middlesex Hospital was held at the Savoy Hotel, London, on Tuesday, Oct. 4th, Mr. Somerville Hastings presiding over a record assembly of Middlesex men and their guests. Mr. Hastings, in proposing the toast of "The School," gave a stirring account of the spirit in which the activities, both charitable and scientific, are being carried on while the destruction and reconstruction of the premises is proceeding. He claimed that the charge of the sick poor, the training of the nurses, and the pursuit of research were all proceeding as usual, while he said that new activities were being projected for their model institution that was rising in Marylebone. New departments were being made, and there would be many more laboratories, all of which would entail more officers, more men, and more money. The builders, he said, were now starting work on the first section of the new edifice, while a strictly anonymous donor had given £160,000 for the building of a nurses' home outside their island site, thus leaving room for additions to the hospital proper, so that, as well as increased ward space, it would be possible to provide some paying wards, a development of hospital activity most valuable to the public. Their model hospital, he assured his audience, would be a centre where the sick poor would remain its first charge, but where research could be carried on, and all local activities catered for. He relied for their success on the esprit de corps of the old friends and the new students. The toast was replied to by Mr. S. G. Asher, Chairman of the Board, Mr. Eric Pearce Gould, Dean of the School, and Mr. E. G. Muir, senior Broderip Scholar, representing the students. Mr. Asher, in reply, while admitting the anxieties of finance, pointed to the steady output of first-class work in research from the two great special departments of the hospital, which they owed to Sir John Bland-Sutton and Sir Samuel Courtauld, and again roused curiosity as to the generous donor by alluding to the magnificent donation for the erection of a nurses' home. Mr. Eric Pearce Gould related the remarkable successes of the students in the various schools, and wittily compared the rapid developments of the new hospital, with its foci here and metastases there, to the growth of a tumour. He had heard that lead had been used beneficially in association with certain of these growths, but the metal which Middlesex required was gold. Mr. Muir, with amusing directness, took the opportunity of the presence of influential members of the Board to point out a great many things which the students would like to have provided for them in the new buildings. He described the sort of Ritz accommodation which they would like, terminating with a plea for a swimming bath and mixed bathing. The toast of "The Guests" was proposed by Mr. Comyns Berkeley, to which Major Ian Hay Beith and Air Vice-Marshall D. Munro replied, each contributing to the gaiety of the evening.

UNIVERSITY OF BRISTOL: ASSOCIATION OF ALUMNI. The sixth annual dinner of the London branch of this Association will be held on Friday, Oct. 28th, at 7.30 for 7.45 P.M., at the Criterion Restaurant, Piccadilly-circus. Viscount Haldane will preside, and Prof. Francis Francis (Pro-Vice-Chancellor of the University) will be the guest of the evening. Members of the University and past members of its associated colleges may apply for tickets for themselves and their friends to Dr. Elizabeth Casson, Holloway Sanatorium, Virginia Water. A business meeting of the branch will be held, by invitation of Mr. C. A. Joll, at 64, Harley-street, W., on Wednesday, Oct. 19th, at 6.30 P.M.

UNIVERSITY OF MANCHESTER.—At recent examinations the following candidates were successful:—

DIPLOMA IN PUBLIC HEALTH.

Part I.—J. S. Smith.
Part II.—James Cumming, Barbara M. Knight, M. V. Menon, and S. P. Wilson.

HARVEIAN SOCIETY.—A clinical meeting of this society will be held at 4.30 P.M. on Thursday, Oct. 13th, at the Hospital for Epilepsy and Paralysis, Maida-vale, London, W.

MEDICO-LEGAL SOCIETY.—A meeting of this Society will be held at 11, Chandos-street, Cavendish-square, W. 1, on Thursday, Oct. 27th, at 8.30 P.M., when Sir William Willcox will give a presidential address.

ROYAL SANITARY INSTITUTE.—A sessional meeting is to be held on Friday, Oct. 28th, at 4.30 P.M., in the Council Chamber, Town Hall, Newcastle-upon-Tyne, when discussions will take place on (1) the Influence of Overcrowding upon Tuberculosis, with special reference to the New Housing Schemes; (2) the New Factories Bill; and (3) the Smoke Problem on Tyneside—How is it to be Tackled? Dr. Charles Porter will take the chair.

CHILD-STUDY SOCIETY.—A series of lectures and discussions is to be held by this Society at the Royal Sanitary Institute, 90, Buckingham Palace-road, on Thursdays, at 6 P.M. On Oct. 13th Dr. E. A. Hamilton-Pearson will speak on the Unadopted Child. Further particulars are obtainable from the hon. secretary of the society at the Institute.

THE PRIX HOLLANDAIS IN ANTHROPOLOGY.—At the closing meeting of the Congress of the International Institute of Anthropology, in Amsterdam, on Sept. 24th, it was announced that the Prix Hollandais, worth over £600, for the best work in physical anthropology or pre-history, had been awarded to Miss Garrod, daughter of Sir Archibald Garrod, Regius Professor of Medicine in the University of Oxford, for her paper on the new Gibraltar skull.

CALEDONIAN MEDICAL SOCIETY.—The annual meeting and dinner of this society will be held on Friday, Oct. 14th, under the presidency of Dr. Angus MacGillivray, chief of the Dundee Highland Society. The meeting will be held in the University College, Dundee, and the dinner in Kidd's Rooms, South Lindsay, West Dundee. On the Saturday the members will pay a visit to St. Andrews on the invitation of the University Court.

BELGRAVE HOSPITAL FOR CHILDREN.—A series of clinical meetings will be conducted by members of the staff of this hospital, whose address is 1, Clapham-road, London, S.W. 9. The first will be on Oct. 12th (Dr. Edmund Cautley), the second on Nov. 9th (Mr. Sidney Boyd), and the third on Dec. 14th (Dr. M. Sydney Thomson). Medical practitioners are invited. There will be tea at 4 P.M. and the meetings will be at 4.30.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—On Tuesday, Oct. 11th, at 4 P.M., Mr. Mayou will give a special demonstration for the Fellowship at the Central London Ophthalmic Hospital, Judd-street, London, W.C. This will be free to members of the medical profession. A clinical course continuing for two more weeks is in progress at the Central London Throat, Nose and Ear Hospital. Almost the whole day can be spent at the hospital. On four successive Wednesdays, at 5.15 P.M., beginning on Oct. 12th, Dr. C. B. Heald will give a series of lecture demonstrations intended for general practitioners who wish to familiarise themselves with recent advances in treatment by electrical methods. An all-day course in Diseases of Children will be given at the Paddington Green Children's Hospital, and the Victoria Hospital for Children, from Oct. 17th to 29th. Also, beginning on Oct. 17th, there will be a two weeks' course in gynæcology at the Chelsea Hospital for Women. During October and November a comprehensive course will be held at the National Hospital, Queen-square, the subjects including general neurology, the pathology of the nervous system, methods of examination and anatomy, and the physiology of the nervous system. Any part of the course may be taken separately. A series of demonstrations on the diagnosis and treatment of diseases of eye will be given at the Royal Eye Hospital between Oct. 24th and Nov. 5th. On Monday, Oct. 17th, at 5 P.M., at the rooms of the Medical Society of London, 11, Chandos-street, W., Sir Humphry Rolleston will give the first of a series of lectures entitled Practical Hints on Medicine, Surgery, and the Allied Specialties. His subject will be the Diagnosis and Treatment of some Endocrine Disorders. Copies of all syllabuses are obtainable from the Secretary of the Fellowship at 1, Wimpole-street, W. 1. The programmes will be sent regularly to those who express a wish to receive them.

THE POPULATION CONFERENCE.—A lecture on th recent conference at Geneva will be given to the Societ for Constructive Birth Control and Racial Progress b Prof. Julian Huxley, at the Essex Hall, Essex-street, Stran on Thursday, Oct. 20th, at 8 P.M.

BIOCHEMICAL SOCIETY.—A meeting of this Societ will be held at the Biochemical Laboratory, Cambridg to-morrow, Saturday, Oct. 8th, at 3 P.M. Among the con munications to be read is one by G. S. Haynes and C. G. Wolf on the Interferometer Method for the Diagnosis Pregnancy and Malignant Growths.

THE SEMON LECTURE.—Mr. Lionel Colledge wi deliver the Semon Lecture in the Barnes Hall of the Roy Society of Medicine, 1, Wimpole-street, W., on Thursda Nov. 3rd, at 5 P.M. His subject will be the Present Positi of Laryngectomy for Cancer of the Larynx, and Mr. Haro Barwell will take the chair.

JEWISH HEALTH PROBLEMS.—Dr. Julius Brutzku ex-minister of the Lithuanian Government, will lectu in German on Jewish Health Problems in Eastern Euro at the Jews' College, Guilford-street, London, W.C., Sunday, Oct. 9th, at 4.30 P.M.

INSTITUTION OF HEATING AND VENTILATI ENGINEERS.—A meeting will be held at 12, Russell-squa London, W.C., on Tuesday, Oct. 11th, at 6.45 P.M., wh Dr. J. S. Owens will speak on Atmospheric Pollution.

WEST KENT MEDICO-CHIRURGICAL SOCIETY.—T annual general meeting will be held on Friday, Oct. 14 at 8.45 P.M., at the Miller General Hospital, Greenwi S.E. Clinical cases will be shown by Mr. C. A. J Dr. H. Nockolds, and Mr. P. B. Roth. Mr. H. P. Winsbu White will demonstrate a series of nephrectomy specime

BRITISH INSTITUTE OF PHILOSOPHICAL STUDIES. The first of the evening meetings for the session 1927- will be held at the Royal Society of Arts, 18, John-stre Adelphi, W.C., on Tuesday, Oct. 11th, at 8.15 P.M., wh Dr. John Rickman and Dr. H. G. Baynes will lecture the Standpoints of Freud and Jung. A limited num of seats are reserved for members of the public who c to apply for tickets.

Medical Diary.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.
MONDAY, Oct. 10th.—5 P.M., WAR. Presidential Addr Surgeon Vice-Admiral A. Gaskell: Professi Opportunities of the Service Medical Officer.
TUESDAY.—5 P.M., THERAPEUTICS. Presidential Addr Prof. J. A. Gunn: Pharmacological Syndromes.
THURSDAY.—8.30 P.M., NEUROLOGY. Presidential Addr Prof. Edwin Bramwell: The Upward Movemen the Eyes; a Clinical Study of a Coördinated M ment.
FRIDAY.—5.30 P.M., CLINICAL. (Cases at 5 P.M.) Ca Mr. P. Lockhart-Mummery: (1) and (2) Two Case Congenital Absence of the Anus Cured by Opera Mr. C. E. Shattock: (3) Case of Dactylitis Syphili Dr. F. Parkes Weber: (4) Congenital Jaundice Man, aged 60 years; (5) Gastric Achlorhydria Woman under Observation over 19 years ago Grave Anæmia; (6) Thrombo-angiitis Oblite (Buerger's Disease) on the Basis of Developme Arterial Hypoplasia; (7) The Result of Omentope a Man with Chronic Ascites from Hepatic Cirrh Mr. A. E. Mortimer Woolf: (8) Case for Diagn Dr. C. Worster-Drought: (9) Case of Acrome with Unilateral Paralysis of the Sixth and Sev Cranial Nerves.—8.30 P.M., OPHTHALMOLOGY. (C at 8 P.M.) Cases: Mr. R. C. Davenport: Two C in Mother and Son, of Congenital Macular Colobon Illustrations of coloboma of the optic disc and a conditions will be shown on the epidiascope. Pe Miss Ida C. Mann: The Process of Retinal Differe tion in Man.

MEDICAL SOCIETY OF LONDON, 11, Chandos-st Cavendish-square, W.
MONDAY, Oct. 10th.—8 P.M., Annual General Mee 8.30 P.M., Presidential Address: Surgery in the Days of the Medical Society of London, by He William Carson.

LECTURES, ADDRESSES, DEMONSTRATIONS &

FELLOWSHIP OF MEDICINE AND POST-GRADU MEDICAL ASSOCIATION, 1, Wimpole-street, W.
MONDAY, Oct. 10th, to SATURDAY, Oct. 15th.—FELLOWSH MEDICINE. CENTRAL LONDON OPHTHALMIC HOSP Judd-street, W.C. Tues., special clinical demonstr at 4 P.M. by Mr. Mayou. Open to all membe the medical profession.—CENTRAL LONDON TH NOSE AND EAR HOSPITAL, Gray's Inn-road, Clinical course, all day.—LONDON SCHOOL OF HY AND TROPICAL MEDICINE, Endsleigh-gardens,

Tues. and Thurs., clinical demonstration at 2 P.M., by Dr. Low and Dr. Manson-Bahr respectively.—ROYAL FREE HOSPITAL, Gray's Inn-road, W.C. Wed., 5.15 P.M., Dr. Heald: The Direct Current, with Special Reference to its Uses in Cases of Injury.—NATIONAL HOSPITAL, Queen-square, W.C. Special two months' course in Neurology. Further information from the Secretary. (Mayfair 2236.)

EST LONDON HOSPITAL, POST-GRADUATE COLLEGE, Hammersmith, W.

MONDAY, Oct. 10th.—11 A.M., Mr. Tyrrell Gray: Surgical Wards. 2 P.M., Mr. Simmonds: Surgical Out-patients. Dr. Ironside: Medical Out-patients.

TUESDAY.—10 A.M., Medical Registrar: Ward Demonstration. 2 P.M., Mr. Sinclair: Surgical Out-patients. 4.30 P.M., Dr. Shaw: Bronchiectasis.

WEDNESDAY.—10 A.M., Dr. Owen: Medical Diseases of Children. 12 noon, Dr. Burnford: Medical Pathology.

THURSDAY.—10 A.M., Dr. Grainger Stewart: Neurological Department. 2 P.M., Dr. Ironside: Medical Out-patients. 3 P.M., Sir H. Simson: Gynæcological Ward.

FRIDAY.—10 A.M., Dr. Dowling: Skin Department. 2 P.M., Mr. Addison: Operations; Mr. Sinclair: Surgical Out-patients.

SATURDAY.—9.30 A.M., Dr. Burnford: Bacterial Therapy and Ward List. 10 A.M., Dr. Owen: Medical Diseases of Children.

Operations, Medical, Surgical, and Special Out-patients, daily 10 A.M. to 5 P.M.; Saturdays, 10 A.M. to 1 P.M.

RTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY, Oct. 10th.—2.30 P.M. to 5 P.M., Medical, Surgical, and Gynæcological Clinics. Operations.

TUESDAY.—2.30 P.M. to 5 P.M., Medical, Surgical, Throat, Nose, and Ear Clinics. Operations.

WEDNESDAY.—2.30 P.M. to 5 P.M., Medical, Skin, and Eye Clinics. Operations.

THURSDAY.—11.30 A.M., Dental Clinic. 2.30 P.M. to 5 P.M., Medical, Surgical, and Ear, Nose, and Throat Clinics. Operations.

FRIDAY.—10.30 A.M., Throat, Nose, and Ear Clinics. 2.30 P.M. to 5 P.M., Surgical, Medical, and Children's Diseases Clinics. Operations.

NDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 9, Leicester-square, W.C.

TUESDAY, Oct. 11th.—5 P.M., Dr. S. E. Dore: Physiology of the Skin.

THURSDAY.—5 P.M., Dr. J. M. H. MacLeod: Morphology and Histopathology of Elementary Lesions.

SPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

THURSDAY, Oct. 13th.—4 P.M., Dr. Cockayne: Disorders of the Thyroid.

NCHESTER ROYAL INFIRMARY POST-GRADUATE OURSE.

TUESDAY, Oct. 11th.—4.15 P.M., Mr. W. R. Douglas: Chronic Inflammations of the Colon.

FRIDAY.—4.15 P.M., Dr. E. M. Brockbank: Dr. Thomas Percival (1740–1804) on the Health of the Cotton Operatives; Some of its Present Day Problems.

Appointments.

BER, HUGH, M.D. Lond., M.R.C.P. Lond., has been appointed Visiting and Consulting Physician to the Derby Poor-law Institution.

WN, HELEN S. H., M.B., Ch.B. Liverp., D.P.H., Medical Officer of Maternity and Child Welfare to the City of Lincoln.

IELD, C. R., M.D. Brux., L.M.S.S.A., D.T.M. & H. Liverp., Senior Medical Officer, Sunderland Poor-law Institution.

, R., M.B., Ch.B. Glasg., Resident House Surgeon, Batley and District Hospital, Yorkshire.

D, R. R., M.B., B.S. Durh., Assistant School Medical Officer, Newcastle.

fying Surgeons under the Factory and Workshop Acts: CAMERON, D., M.B., Ch.B. (Buckhaven, Fife); CLARKE, W. T., L.R.C.P. Lond., M.R.C.S. (Morley, W. Riding); FISHER, H. R., M.B., B.Ch. Liverp. (Menai Bridge, Anglesea)

Vacancies.

For further information refer to the advertisement columns.

em Hospital, Lambeth-road, S.E.—Res. H.P. £25 per quarter.

ingham and Midland Eye Hospital.—Res. Surg. O. £150.

ingham Cripples' Union and Royal Orthopædic and Spinal Hospital.—Sen. H.S. £400.

ingham, Dudley-road Hospital.—Three H.S.'s. Each at rate of £200.

burn and East Lancashire Royal Infirmary.—Third H.S. £150.

e Borough Hospital.—Hon. Surg.

ford Royal Infirmary.—One H.S. and one H.P. Each £150.

ol Royal Infirmary.—Sen. Res. M.O. £200.

al London Throat, Nose, and Ear Hospital, Gray's Inn-road, W.C.—Hon. Asst. Out-patient Reg.

London Hospital for Children and Disp. for Women, Shadwell, E.—H.P., H.S., and Cas. O. Each at rate of £125.

stone, Royal Victoria Hospital.—Sen. and Jun. Res. M.O.'s. At rate of £150 and £100 respectively.

Gloucestershire Royal Infirmary, &c., Gloucester.—Res. Surg. O. and Asst. H.S. At rate of £175 and £120 respectively.

Hampstead General and North-West London Hospital, Haverstock-hill, N.W.—Cas. M.O., H.P. Also H.S. Each at rate of £100.

Hôpital Français, 172, Shaftesbury-avenue, W.C.—Jun. Res. M.O. £100.

Hospital for Consumption and Dis. of Chest, Brompton, S.W.—H.P. £50 for six months.

Hospital of St. John and St. Elizabeth, 40, Grove End-road, N.W. Res. H.S. At rate of £75.

Leeds City Sanatorium, Gateforth.—Res. M.O. £400.

London Jewish Hospital, Stepney Green, E.—Cas. O. £150.

London Temperance Hospital, Hampstead-road, N.W.—Clin. Asst., Ear, Nose and Throat Dept.

Maidstone, Kent County Ophthalmic and Aural Hospital.—Hon. Aural S.

Manchester Maternity and Child Welfare Centres.—Infant Clinic M.O. £600.

Metropolitan Ear, Nose and Throat Hospital, Fitzroy-square.—Anæsthetist.

Metropolitan Hospital, Kingsland-road, E.—Sen. H.P., Sen. H.S., Jun. H.P., Jun. H.S., and two Cas. O.'s. Each at rate of £100.

Miller General Hospital for South-East London, Greenwich-road, S.E.—Out-Patient Officer. £150.

Mount Vernon Hospital for Dis. of Chest, Northwood. Middlx.—Two Res. M.O.'s. At rate of £300 and £250 respectively.

Northampton General Hospital.—Asst. H.S. At rate of £150.

Norwich City.—Asst. M.O.H. and Sch. M.O. £600.

Norwich, Norfolk and Norwich Hospital.—H.P. and H.S. Each £120.

Nottingham, Bagthorpe Institution and Infirmary.—Res. Asst. M.O. At rate of £300.

Oswestry, Shropshire Orthopædic Hospital, &c.—Two H.S.'s. Each £200.

Ovamboland, South-West Africa.—Dist. S. £1000.

Oxford, Radcliffe Infirmary and County Hospital.—Hon. S., Hon. Asst. S., and Hon. Orthop. S.

Plymouth, South Devon and East Cornwall Hospital.—H.S. At rate of £50. Also Cas. H.S.

Queen's Hospital for Children, Hackney-road, E.—H.S. At rate of £100.

Royal Chest Hospital, City-road, E.C.—Res. M.O. Also H.P. At rate of £150 and £100 respectively.

Royal Free Hospital, Gray's Inn-road, W.C.—Obstet. and Gynæcological Unit, Sen. Asst., part-time. £350. Second Asst. £500. Third Asst. £270. Also Res. Asst. Pathologist. £150.

Royal National Orthopædic Hospital, 234, Great Portland-street, W.—Five Registrars. Each £100.

Royal Northern Hospital, Holloway, N.—Med. Reg. £100. Clin. Asst. in Ven. Dis. Dept. Clin. Asst. in Ophth. Dept.

St. George's Hospital. S.W.—Asst. Radiologist. £100.

St. Mark's Hospital for Cancer, City-road, E.C.—H.S. At rate of £75.

Sheffield Royal Hospital.—H.P. £80.

Swansea Hospital.—H.S. for Ophth. and Aural Depts. £150. £200.

Victoria Hospital for Children, Tite-street, Chelsea, S.W.—Hon. Med. Reg. and Hon. Surg. Reg. Also Hon. Out-patient Anæsthetist. 10*s.* 6*d.* per attendance.

Walsall General Hospital.—Sen. and Jun. H.S.'s. At rate of £200 and £125 respectively.

Warwick County Mental Hospital, Hatton.—Asst. M.O. £300.

Warwickshire and Coventry Joint Committee for Tuberculosis.—Asst. Tuberculosis O. £650.

West End Hospital for Nervous Diseases, Regent's Park, N.W.—Hon. Anæsthetist.

West Sussex County Council and Bognor Urban D.C.—Asst. County and Dist. M.O.H. £700.

A vacant appointment for a Certifying Factory Surgeon at Scalloway (County of Shetland) is announced.

Births, Marriages, and Deaths.

BIRTHS.

CHORLTON.—On Sept. 28th, at Buxton, the wife of Dr. J. S. Chorlton, of a daughter.

JEROME.—On Sept. 25th, at Sandhurst, Sutton Coldfield, the wife of John S. Jerome, *M.C.*, B.M., B.Ch. Oxf., of twin daughters.

ROWLEY.—On Oct. 1st, at a nursing home, Clifton, the wife of Dr. A. T. F. Rowley, Wrington, Somerset, of a daughter.

TELFER.—On Sept. 27th, the wife of Dr. A. C. D. Telfer, Howard-road, Walthamstow, London, E., of a daughter.

MARRIAGES.

WALKER—NIALL.—On Sept. 5th, at St. Michael's Church, Chatham, by the Rev. Father Ryan, Captain Cyril V. Walker, Army Dental Corps, son of the late Dr. C. E. Walker, of Hurworth, and Mrs. Walker, of Woodlands-terrace, Darlington, to Norah M. A. Niall, M.R.C.S. Eng., L.R.C.P. Lond., eldest daughter of Dr. and Mrs. W. G. Niall, Kinkora, New-road, Chatham.

DEATHS.

SANGSTER.—On Sept. 30th, Charles Sangster, M.R.C.S., L.R.C.P., late of Lambeth, aged 81.

*N.B.—A fee of 7*s.* 6*d.* is charged for the insertion of Notices of Births, Marriages, and Deaths.*

Notes, Comments, and Abstracts.

PLAN FOR AN INTERNATIONAL HOSPITAL CONGRESS.

AT the invitation of the American Hospital Association and of the League of Red Cross Societies representatives from 11 countries met on Sept. 19th in Paris, at the headquarters of the League, to discuss the advisability of calling an International Hospital Congress. The representatives of Great Britain were Mr. J. Courtney Buchanan, hon. secretary of the British Hospitals Association; Lieut.-Colonel Clement Cobbold, of the Gordon Hospital for Rectal Diseases, London; Mr. W. H. Harper, house governor of the Wolverhampton and Staffordshire Hospital; and Captain J. E. Stone, hon. secretary of the Incorporated Association of Hospital Officers. The preparatory work for the meeting had been carried out by Dr. E. H. Lewinski-Corwin, director of the Hospital Information and Service Bureau of the United Hospitals Fund of New York, and the delegates were welcomed by Dr. Joseph C. Doane, medical director of the Philadelphia General Hospital and president of the American Hospital Association. At the unanimous invitation of those present Dr. René Sand, technical counsellor to the League of Red Cross Societies, took the chair.

The delegates were unanimously in favour of holding an international hospital congress, and discussed the best time and place for it. Invitations were received from Groningen, Prague, and New York, and it was eventually agreed to accept the American invitation for the first congress. Several of those present expressed the opinion that it was impossible to organise a congress in less than two years, so the date was provisionally fixed for June, 1929. An international executive committee, consisting of two delegates from each participating country, is to be appointed for the general preparation of the congress, and Dr. Lewinski-Corwin will act as its general secretary. Those present were invited to organise national committees in their respective countries with a view to forwarding the aims of the congress.

It was decided that the problems to be discussed should be limited as far as possible to the following: (*a*) the founding of national hospital associations, and of an international hospital association; (*b*) the respective fields of public and private hospital work; (*c*) the hospital as a centre for cure and prevention of disease, medical education, and research; (*d*) the training of hospital executives, nurses, and auxiliary personnel; and (*e*) the economic problems of hospital administration. One session will be devoted to the discussion of such special problems as the care of the mentally ill and the comparability of hospital statistics. An international exhibition is to be arranged at the time of the congress, and visits will be paid to the hospitals of New York, Philadelphia, Baltimore, and Washington. Nurses were represented at the meeting by Miss Reimann, secretary to the International Council of Nurses, who expressed a wish that the date of the congress and that of the International Nurses' Congress, which is to meet in Montreal in 1929, might be so arranged as to facilitate attendance at both.

"H.M. BUG-CATCHER."

To the Editor of THE LANCET.

SIR,—In your issue of July 16th, p. 156, you express some surprise that a man holding a Royal Warrant of "Bug Catcher to His Majesty," should be mentioned in Boyle's Court Guide of 1837. Whether the Royal Warrant was continued in the reign of Queen Victoria I do not know for certain, but I do know that the person referred to, whose identification is easy, or his successor in an old-established firm of upholsterers and furniture cleaners, located in Great Marylebone-street, near Marylebone-lane, styled himself on a board or plate displayed in his shop window as "Bug Exterminator to the Royal Family." This was always to be seen in my younger days and perhaps is there still.

The same expert in hunting small game to whom you refer contributed an interesting article on the subject of *Cimex lectularius* to Mayhew's "London Labour and the London Poor," Vol. III. In this he not only recounts some of his professional exploits, including a visit to the palace to relieve Princess Charlotte of a parasite that had tormented her, but gives a very good account of the natural history of the insect, with useful details not readily to be obtained elsewhere. He states that it is supposed that bugs were first introduced into England after the Great Fire of London, in timber that was imported for the rebuilding of the city. His ancestor started his warfare against the pest soon after.—I am, Sir, yours faithfully,

F. LUCAS BENHAM, M.D., M.R.C.P.

Semaphore, South Australia, August 22nd, 1927.

EFFECT OF ULTRA-VIOLET LIGHT ON PLANTS.

IT is a common statement that ultra-violet light is evidently not needed for the healthy growth of plant because every variety of plant can easily be cultivate behind glass which is impervious to ultra-violet ligh E. M. Delf [1] points out that this belief is incorrect; differer kinds of glass differ in the degree to which they transm ultra-violet light and all are not impervious to it; als many tropical and subtropical plants, grown in Englan under glass and with every precaution as to temperatu and moisture, refuse to thrive as they would in their ow country. Such experimental work as has previously bee done has rather gone to show that ultra-violet light actually harmful or even fatal to plants, and Delf mentio that previous workers found that a single long exposu of 2½ hours, or repeated shorter ones of even as little 5 minutes a day, had a fatal or a severely stunting effe upon them. In her own experiments, she sought to ascerta whether in any circumstances dosage with ultra-violet lig can be of benefit to greenhouse plants. She used a Hewitt quartz mercury-vapour arc and gave exposures of 30 secon or longer. All doses which she used, from 10 minutes dov to 1 minute, had a harmful effect, but when she us doses as small as 30 seconds on a number of successive da a beneficial action was observed after a certain latent perio Though no more than suggestive this investigation affor an interesting analogy to work at a certain stage in t history of the irradiation of animals. Certain earlier worke exposed rats to ultra-violet light for lengthy periods an in consequence, reported that the effect of the rays is whol harmful. They entirely missed the extremely importa biological action of small doses of the rays.

It would be interesting to know whether glass whi transmits ultra-violet rays freely can be usefully employ to increase the growth of fruit and vegetables in greenhous It has been stated that an experiment with tomatoes show that improvement was obtained with this kind of glass.

ULTRA-VIOLET LAMPS.

Messrs. Watson and Sons (Electro-Medical), Ltd., ha recently issued an abridged catalogue giving illustratic of a selection of the various sources of ultra-violet radiati useful for therapeutic work. Their "Sunic" and "Kin way" models appear to be of simple and workable desi and are adapted for use with the mercury-vapour type lamp; the former model is also available for use with t open tungsten arc. It is worth noticing that protecti goggles for the eyes of operators are now made so that th reflect a large percentage of the heat received from open lamps; this is done by plating the glass with a transpare film of gold.

A BADLY-FITTING TRUSS.

To the Editor of THE LANCET.

SIR,—I have frequently suffered sickening and exhaust pain for the past seven years owing to the repeated failu of the many trusses which I have patiently worn for mon at a time for my double scrotal hernia. I feel that I ha sufficiently graduated in the school of suffering to ventil my experiences, which are briefly the failure of the applian provided to effect their object, caused apparently by t lack of coöperation between the surgeon and the mechanici the latter of whom is often hardly more than a salesman

I am told that there is no hospital for hernia; can t possibly be true in London? In all my inquiries I ha never heard of a surgeon specialist in the mechanics of truss, though, of course, I have heard of many surgeons w operate for hernia—an operation for which I am far old. The general practitioner seems to know little or noth of the mechanics of the truss.

When I go to the dentist he fits my denture, or rat gets it fitted, until I am comfortable. Is it too much to the surgeon to do the same with the truss which he ord for me? I am, Sir, yours faithfully,

Sept. 29th, 1927. SENEX

[1] Brit. Jour. of Actinotherapy, 1927, ii., 106.

Sir George Newman is to open on Friday, Oct. 14 a new isolation hospital which has just been completed Southport at a cost of £80,000.

NEWCASTLE INFIRMARY APPEAL.—An appeal £150,000 has been launched by the authorities of the Ro Victoria Infirmary, Newcastle. The immediate necess for the appeal has been created by the fact that the le of the adjoining buildings of the Ministry of Pensions Hospi expires on March 31st, when they revert to the infirma There is a waiting-list of 2000 and 40 or 50 emergency b have frequently to be made up, causing serious overcrowdi

Ingleby Lectures

ON

PLACE-IN-FAMILY AS A FACTOR IN DISEASE.

Delivered at the University of Birmingham

BY G. F. STILL, M.D. CAMB., LL.D. EDIN., F.R.C.P. LOND.,

PROFESSOR OF DISEASES OF CHILDREN, KING'S COLLEGE HOSPITAL; CONSULTING PHYSICIAN, THE HOSPITAL FOR SICK CHILDREN, GREAT ORMOND-STREET.

LECTURE I.

THE progress of medical science in recent years has tended more and more to reduce the causation of disease to terms of bacteriology and biochemistry—and this with immense gain to mankind; but there are other factors which determine morbid conditions whether congenital or acquired, factors which being more shadowy and difficult to define lend themselves less readily to scientific study by the precise and accurate methods of the laboratory. Such an one is the influence, if any, of place-in-family, and the questions I have set myself to consider in these lectures are the existence and the nature of any causal relation between place-in-family and those abnormalities of function or formation which are of antenatal origin. In this definition I do not mean to include only those affections or conditions which are manifest at birth, such as congenital malformations, but also some which, although they may not make their first appearance until weeks, months, or even years after birth, seem nevertheless to have as their underlying cause an inborn vice, a sort of pathological predestination, which dates back to some antenatal period, for example, hypertrophy of the pylorus and probably some cases of epilepsy.

In this first lecture I shall consider (1) what evidence there is for the general proposition that place-in-family is a factor in the causation of disease; (2) what evidence there is of such influence in particular affections belonging to the group just defined. Prof. Karl Pearson [1] in 1914 published a lecture On the Handicapping of the First-born, embodying statistics collected by himself and others with regard to various affections, mainly as indirect support for his earlier contention that the elder-born were specially liable to tuberculosis, insanity, and criminality. His point of view was chiefly the sociological and eugenic. The observations which will be considered in these lectures were made quite independently and indeed were almost completed before I was aware of Prof. Karl Pearson's interesting papers, and they were made from a different standpoint.

In seeking for light upon the obscurity of certain conditions of antenatal origin it seemed to me that if the impression gained from clinical experience as to influence of place-in-family were confirmed, this might be a step in the elucidation of their pathogenesis. I have therefore been collecting for several years statistics on this point from my own personal observations, several of my hospital colleagues have kindly allowed me to make use of their cases also, and I am specially indebted to my revered and lamented friend, Dr. John Thomson, of Edinburgh, who generously furnished me with statistics which he had himself collected on this particular point but had not published.

DEFINITION OF PLACE-IN-FAMILY.

If the subject is to be approached with a view to pathology or pathogeny—and, indeed, from any point of view—it seems to me essential that the term place-in-family should mean place in order of pregnancies, not merely place amongst live-born; in other words, the order must include miscarriages and stillbirths. A first pregnancy—whether it results in a miscarriage, a stillbirth, or a live child—involves physiological and anatomical changes in the mother, some of which remain for years, if not permanently, so that a live-born child, the result of a second pregnancy following a miscarriage or a stillbirth, is not, even so far as the gross antenatal environment is concerned, the equivalent of a first-born; nor is there any reason to suppose that it is, so far as those subtler and more obscure influences are concerned which determine the course of development. If these influences have any special tendency to perversion in the first pregnancy they may be expected to show it at least as much in an aborted embryo or fœtus or a stillborn child (in each of which, be it noted, abnormalities of development have been observed) as in a live-born; and if this tendency to perversion is less in subsequent pregnancies then it is fallacious, for the purpose of this inquiry, to count as first-born the child which happens to be the first live-born when there may have been one or even several previous pregnancies ending in miscarriage or stillbirth. Most of the statistics which have been published in connexion with this subject ignore this point altogether, and are therefore of no value for my present purpose.

The facts recorded here as to the order of pregnancies were obtained almost invariably from the parents, nearly always from the mother, and nearly all the children to whom my statistics refer were under the age of 12 years. I had not gone far in this investigation before I learned that after a mother has had some live-born children she soon becomes forgetful of her past reproductive history, and the older her children the more likely she is to omit or misplace miscarriages or stillbirths. A history taken from an adult with regard to his mother's pregnancies seems to me to be almost worthless; many, probably most, adults have no knowledge whatever of the number or order of any miscarriages or stillbirths which the mother may have had, and consequently the place-in-family of adults is very liable to be stated inaccurately. For this reason the influence of place-in-family is best investigated with regard to children, and provided completion of family does not affect the problem to any appreciable extent—a point to which I shall refer later—statistics obtained thus will be far more reliable than any with reference to adults.

In certain respects primogeniture is well recognised as involving special risks; the mechanical difficulties of a first labour are the cause of various affections from direct trauma, from asphyxia, from hæmorrhage, and so forth; the present inquiry is not concerned with these but only with the influence of primogeniture in respect of conditions which are of antenatal origin as already defined.

INCIDENCE AND LIABILITY.

It must be pointed out in the first place that incidence and liability are not interchangeable terms. Some confusion has arisen from lack of clearness on this point. For instance, to show that 40 per cent. of cases of congenital deformities are first-born, whereas only 20 per cent. are second-born, is not necessarily equivalent to showing that the first-born are twice as liable to these affections as the second-born; it is even possible that the very reverse might be true. The incidence of disease in relation to place-in-family tells us nothing about liability to disease in this respect, unless the incidence can be correlated with the number of pregnancies belonging to each place-in-family as found in the whole population, or, if this is impracticable—as it is—with the most reliable average for these numbers which can be obtained.

It sounds plausible enough, as an argument in favour of the special liability of the first-born, to state that 40 per cent. of the cases of any particular

[1] Karl Pearson: On the Handicapping of the First-Born. London: Dulau and Co. 1914. Vide also the Supposed Inferiority of First- and Second-Born Members of Families, Statistical Fallacies. By T. B. Macaulay, F.I.A., F.A.S., Montreal.

disease occur in the first-born; a form of statement which George Eliot scathingly described as "a statistical amount without a standard of comparison but with a note of exclamation at the end." The fallacy can be appreciated if one supposes a country in which the number of children in any family was two; it is obvious that the occurrence of 50 per cent. of the cases of any disease in the first-born would not in the slightest degree indicate any special liability of the first-born. Moreover, supposing that a population consisted of 200 first-born, 120 second-born, and 80 third-born, and that of the persons affected by a particular disease in that population 90 were first-born, 60 second-born, and 50 third-born, so that of the 200 persons affected by the disease 45 per cent. were first-born, 30 per cent. second-born, and 25 per cent. third-born; these figures of incidence so far from proving that the first-born are specially liable, and that the second-born are more than liable than the third-born, prove exactly the reverse, for when the figures are compared with those of the total population it is seen that of the first-born only 45 per cent. were affected, while of the second-born 50 per cent., and of the third-born 60 per cent. were affected.

FIG. 1.—*Consecutive Private Cases (1000).*

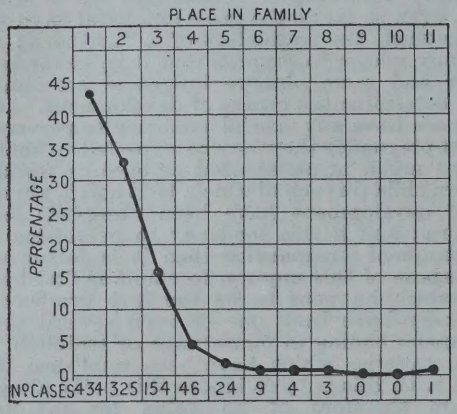
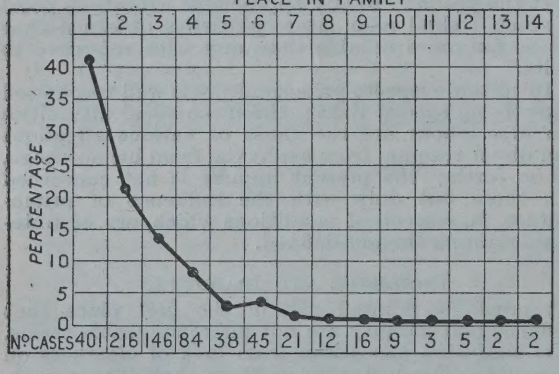


FIG. 2.—*Consecutive Private Cases, J. Thomson (1000).*



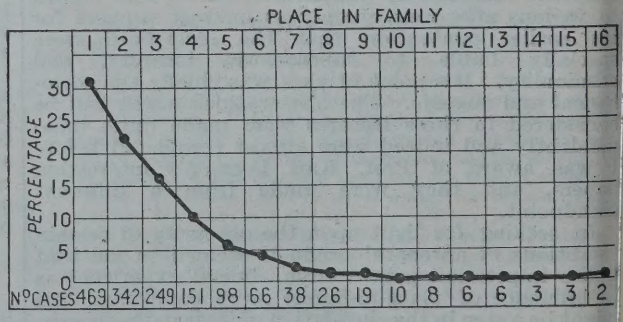
The method of comparison adopted in this imaginary case is the ideal way of ascertaining whether any particular place-in-family has any special liability to a particular disease, but it is obviously impracticable; there is no means of ascertaining the number of persons in the whole population belonging to each place-in-family, and it is also practically impossible to know the total number of cases of any particular disease occurring in the population with reference to place-in-family. Another mode of comparison is, however, available. The proportion of each place-in-family in the general population may be estimated from a sufficiently representative portion of it, and with this may be compared the proportion of each place-in-family in a number of cases of any particular disease. Such a method is less accurate than the former; it is difficult to be sure that any partial figures are representative of the whole population, and in any series of cases of any particular disease the accuracy of any generalisation as to the proportion of each place-in-family will depend upon the number of cases collected, even if the fallacy of selective influences is eliminated.

STANDARD PROPORTIONS OF PLACE-IN-FAMILY.

It is necessary, however, if we are to deduce liability from incidence, that we should have some reasonably reliable standard of comparison. Herein lies one of the chief difficulties of this inquiry. Miscarriages and stillbirths are not recorded in official registrations; even in hospital records there is often no note of miscarriages or stillbirths, or at best, a note with no reference to their place-in-family unless the patient happens to be suffering from some disease in which the point is thought to be of importance. The readiest source to hand seemed to be one's own private case-notes, so I took 1000 consecutive cases without regard to the reason of their being brought for medical examination. The result is shown in Fig. 1. Dr. John Thomson took the same number from his private records and obtained a result (Fig. 2) which corresponds very closely with mine. The striking feature of these curves is not merely the predominance of the first-born which might be expected, but the degree of this predominance. This is so marked as to suggest that there may be some fallacy; a comparison with other figures proves that this is so.

For another series of cases (Fig. 3) from private case-books, those of an obstetrician, I am indebted to Dr. Herbert Spencer. This comprises 1500 pregnancies, including, as do all the figures given in these lectures unless otherwise stated, miscarriages and stillbirths. The proportion of first-born is seen to be considerably lower than that obtained in the two previous series, and this is probably due to the elimination of certain fallacies which I shall mention later; it is, in fact, a nearer approximation to truth, though still probably exaggerating the normal preponderance of the first-born. Evidence of this is, I think, available; official birth registrations in Scotland showed a proportion of first-born 21·6 per cent. As already pointed out, these statistics from birth registration are inadmissible for determining the proportion belonging to each place-in-family inasmuch as they do not include miscarriages or stillbirths, but so far as my present point is concerned—viz., the proportion of the first-born—they have some small value, for it is obvious that if there is any live-born family the inclusion of previous miscarriages and stillbirths cannot do otherwise than reduce the proportion of first-born live children, so that any error in the proportion of first-born in such statistics must be an error of excess.

FIG. 3.—*Pregnancies (1500 Cases).*



The exact amount of this excess it is difficult to estimate, but in a series of 800 live-born children it was found that inclusion of miscarriages or stillbirths made a reduction of 7 per cent. in the proportion of the first-born. Other similar figures might be quoted all subject to the same fallacy (at least there is no statement to the contrary) that they do not include miscarriages or stillbirths. This omission limits this value for my purpose to a vague and unreliable indication of the proportion of the first-born. I shall, therefore, only mention some of the results obtained with reference to this particular place-in-family. Dr. Matthews Duncan,[2] from figures supplied by Dr. A. Mitchell, found the percentage of first-born to be 22·8; Karl Pearson, from much more recent figures (1911) also from Scotland, found that the percentage was 21·6, and in another series from the poorest Glasgow population 22·5. It would seem, therefore, that 41·75 per cent.—the figure obtained from statistics of 2000 private patients, by combining my figures with Dr. Thomson's—is much too high. The reasons of this, I think, are not far to seek. In the first place, these records include many children brought because they were suffering from some condition in which, as I shall show, primogeniture is apparently a factor, and the proportion of these will therefore be much higher than in any statistics of general population; secondly, these records include a large number of children brought for the very reason that they were first children, the mother's inexperience has prompted her to seek medical advice for some difficulty of infant feeding or some slight ailment which in the sixth or seventh, or even the second or third, receives less anxious attention; and lastly, a fallacy probably slighter in degree, these statistics deal chiefly with families of the middle or wealthier classes in which the size of family is on the average less than amongst the poorer so that the proportion of first-born, and indeed of other early born children also, is increased. This last fallacy applies no doubt also to the curve which I have taken from an obstetrician's private cases, and here also it is likely that a first pregnancy is more liable to be thought to require specialist's care than the later ones.

All these fallacies can, I think, be eliminated to a very large extent, if not entirely, by taking figures of some acute disease of what I would call "neutral" character, so far as place-in-family is concerned, a disease in which, owing to its acuteness or its alarming symptoms, medical advice is equally likely to be sought, whether it be the first child, or the only, or the late-born of a large family; and if these figures are derived from hospital practice where financial considerations have less influence, the elimination of fallacy will be still more complete. By "neutral" I mean diseases in which there seems to be no reason to expect that place-in-family would be a determining factor; an assumption, I admit, but one which seems to be justifiable in the case at any rate of such diseases as the two which I shall consider as typical of this category—namely, broncho-pneumonia and croupous pneumonia. In Figs. 4 and 5 it will be seen that in both these affections the percentage of first-born is just under 20 per cent., and that this curve slopes gradually and almost evenly downwards to the fourth or fifth pregnancy, after which there is a more sudden fall. The proportion of first-born is, in accordance with what might be expected—namely, slightly lower than that given by birth registration statistics which, as already shown, err on the side of excess owing to the omission of miscarriages and stillbirths.

As a working hypothesis, therefore, I think it is safe to take these curves of acute disease of presumably neutral character as a standard of comparison for the various affections which are now to be considered, and by combining these two series of statistics, so as to obtain larger figures (900) any error will be reduced and a curve obtained which I shall call the standard curve (Fig. 6), admitting that it is only a working hypothesis. If this standard curve represents approximately the place-in-family distribution of the general population, one would expect that any disease in which no special liability attaches to place-in-family would conform more or less closely to this curve. This is shown by the charts of two diseases selected at random from those in which there would seem to be no special probability of antenatal influence from place-in-family—viz., tuberculosis and digestive disorders (Figs. 7 and 8). In both there is a gradual slope downwards from the first place, which in both approximates, as it does in the standard curve, to 20 per cent.

Having now obtained what I believe to be a sufficiently reliable standard of comparison, I pass on to the consideration of certain affections which, so far as my evidence goes, seem to indicate some special influence of place-in-family.

FIG. 4.—*Broncho-pneumonia (400 Cases).*

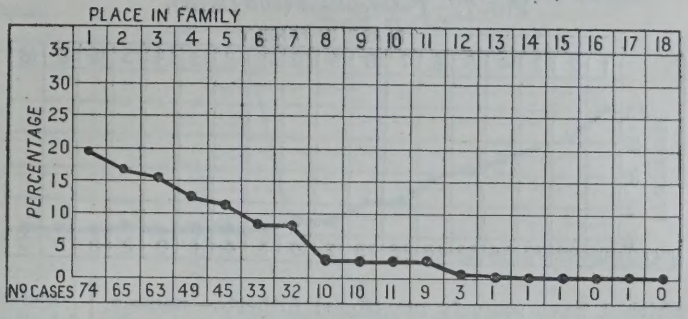


FIG. 5.—*Lobar Pneumonia (500 Cases).*

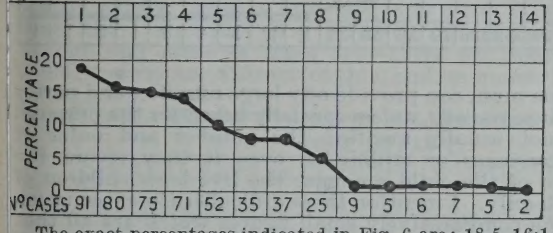
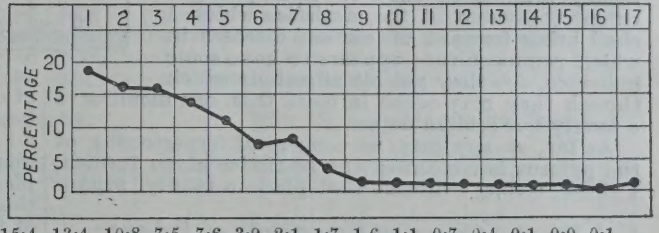


FIG. 6.—*Standard Curve.*



The exact percentages indicated in Fig. 6 are: 18·5, 16·1, 15·4, 13·4, 10·8, 7·5, 7·6, 3·9, 2·1, 1·7, 1·6, 1·1, 0·7, 0·4, 0·1, 0·0, 0·1.

CONGENITAL HYPERTROPHY OF THE PYLORUS.

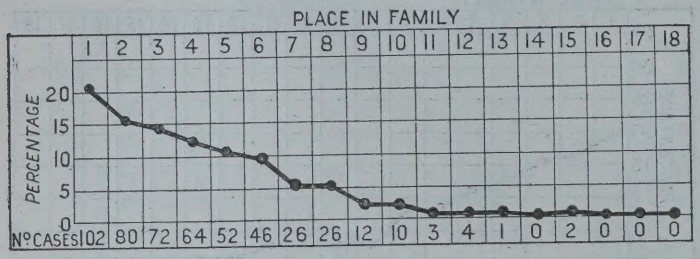
This may be mentioned first, for there is, perhaps, no affection which shows more convincingly the influence of place-in-family. I have been able to collect from my own observation 300 cases, and in order to obtain a nearer approximation to accuracy by larger figures I have combined with these 100 cases from Dr. Thomson's records (Fig. 9). The proportion of first-born is remarkable; it is 48·5 per cent., a proportion so far beyond any found in the charts shown above, and particularly so far in excess of the standard that the element of chance can

[2] M. Duncan: Fecundity, Fertility, and Sterility, 1866.

hardly be considered, and one is driven to assume some causal influence of primogeniture.

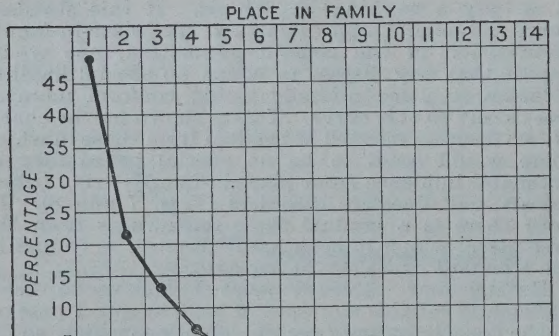
The steepness of the fall from first-born to second-born and later is a striking feature of this curve and not parallelled, so far as I know, by any other condition. The more importance may be attached to this curve because it is almost free from one fallacy which I have scarcely mentioned hitherto—namely, incompleteness of family. Some affections, especially the commoner ones, such as enlargement of tonsils or appendicitis, may affect the first-born, but they often affect also one or more of the later children of the same family, so that unless statistics are taken from completed families the results might be misleading; congenital hypertrophy of the pylorus, on the contrary, very rarely occurs twice in the same family (according to my own observations this happens only in about 1–2 per cent. of the families showing this affection), so that the proportion of first-born would be altered very little if statistics could be taken from completed families only. Probably this fallacy diminishes only to a very slight extent the value of the statistics which I shall bring forward of certain diseases in which primogeniture appears to have some influence, for they are all affections which though they may occur in more than one member of a family but seldom do so.

FIG. 7.—*Tuberculosis (500 Cases).*



As far, at any rate, as congenital hypertrophy of the pylorus is concerned the statistics given furnish, I think, strong evidence that place-in-family, primogeniture to wit, is an ætiological factor; and further, if we can regard this as established for one disease then the general proposition that place-in-family can be a causal factor in disease is established, and it is probable that we shall find it a factor in other affections.

FIG. 9.—*Congenital Hypertrophy of Pylorus (400 Cases).*

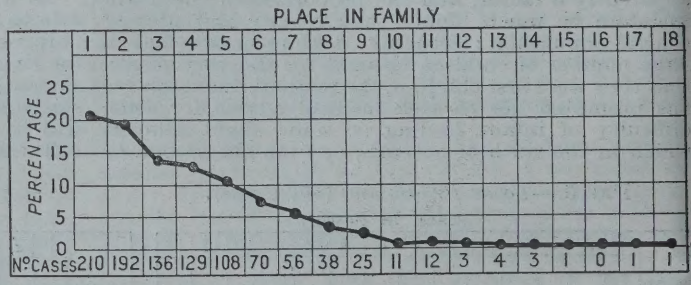


CONGENITAL HEART DISEASE AND OTHER MALFORMATIONS.

In association with congenital hypertrophy of the pylorus, various congenital anomalies have been observed. Dr. Thomson in 100 cases observed achondroplasia once (second child), congenital heart disease once (sixth child), and amongst my 300 cases there were three cases of congenital heart disease (second, fifth, and fifth child respectively), one of Mongolism having also congenital talipes varus (first child), one of congenital hydronephrosis (first child), one of severe unilateral congenital talipes (first child), and one of webbed toes (fourth child). If these are more than chance associations it seems a reasonable inference that there may be some common factor in causation, and that amongst the possible factors is to be reckoned place-in-family. Of the few cases mentioned, however, only three—the Mongolism, the hydronephrosis, and the congenital unilateral talipes—were in first pregnancies; two of the cases of congenital heart disease were in fifth pregnancies, and one in sixth, so that the association was noted not only in first pregnancies but also in late pregnancies, a fact which, as I shall show later, may have some significance.

This brings me to the consideration of congenital deformities. It is not easy to produce large statistics of these, partly because they are not so frequent that the experience of a few observers, and still less of one man, can provide any large number, and partly because records, unless specially taken for the purpose, do not usually mention the number and order of miscarriages or stillbirths, even if they record the place of the child amongst the live-born children of the family. I mention these difficulties in extenuation of the comparatively small figures which are all that I can bring forward in illustration of some of my points; and no one realises more fully than I do how easy it is to arrive at incorrect conclusions by arguing from insufficient statistics.

FIG. 8.—*Digestive Disorders (1000 Cases).*

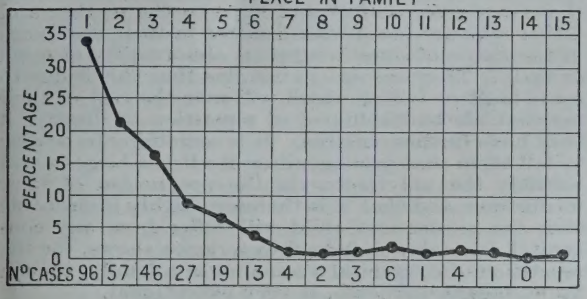


With this parenthesis of apology I pass to the place-in-family incidence of congenital heart disease as shown in statistics of 250 cases (Fig. 10). The proportion of first-born is far above that of the standard chart (Fig. 6), although not so high as in congenital hypertrophy of the pylorus. It would seem, therefore, that there is some special liability of the first-born to this particular form of congenital abnormality.

More marked evidence of special liability of the first-born to congenital abnormalities in general is afforded by figures grouping together malformations of all sorts. In Fig. 11 are collected 160 cases of hare-lip and cleft palate (43), congenital hydrocephalus (33), hypospadias (5), congenital obliteration of œsophagus or bowel (5), of bile-ducts (5), spina bifida, congenital cataract, coloboma iridis, congenital deaf-mutism, absence or redundancy of parts of limbs, and other malformations. I have not included congenital malformations of the heart in this series as they have already been considered. It will be seen that 41·8 per cent. were first-born, a proportion which seems to corroborate the evidence already given of some special liability in the first pregnancy to anomalies of development. I must point out that these figures refer only to congenital abnormalities which were recognisable clinically. As every morbid anatomist knows, autopsy sometimes reveals abnor-

malities which were not suspected during life—for instance, absence of one kidney, or a diverticulum from some part of the intestine, or some abnormal arrangement of blood-vessels—so that in the absence of universal post-mortem examination it is impossible to determine place-in-family incidence of congenital abnormalities with any such accuracy as is possible,

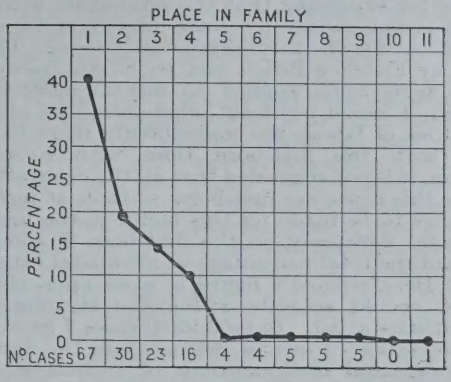
FIG. 10.—*Congenital Heart Disease (280 Cases).*



for instance, in such a condition as congenital hypertrophy of the pylorus. Nevertheless, the striking liability of the first-born to those abnormalities which are recognisable clinically makes it reasonable to suppose that if it were practicable to include in the statistics also those which can only be detected by autopsy the result would not be materially altered.

I am not considering in these lectures any special liability which may attach to place-in-family from intranatal causes, whether it be from the special difficulties of labour which attach to primiparity or the lesser dangers which are involved in the precipitate labour which is more likely to occur in the multipara. Nevertheless, I shall mention here the congenital spastic palsies because, although it is often assumed that they are due to difficulty of labour—as undoubtedly some of them are—there are many in which there is no evidence of this, and, moreover, the usually assumed that in such cases both affections are due to some damage of the cerebral cortex, directly or indirectly from meningeal hæmorrhage or asphyxia during labour. It is proved, however, by autopsies that in some cases the cerebral condition is one of much earlier developmental origin; certainly

FIG. 11.—*Congenital Abnormalities (160 Cases).*



the association does not prove that either or both are the result of difficult parturition. This brings me to the question how far mental deficiency apart from congenital cerebral palsies is related to place-in-family. The answer is not so simple as might be supposed if by the influence of place-in-family is meant, as in these lectures, the antenatal and developmental influence of place-in-family. The difficulty of eliminating intranatal causes such as asphyxia and traumatism is great. No one doubts that a certain proportion—probably a small one—of cases of mental deficiency are due to these causes which, it is agreed, will be operative chiefly in the first-born; but the uncertainty in particular cases is so great that I have been unable to separate them, so that my figures are open to the criticism that they probably include a

FIG. 12.—*Mental Deficiency; not Mongols (450 Cases).*

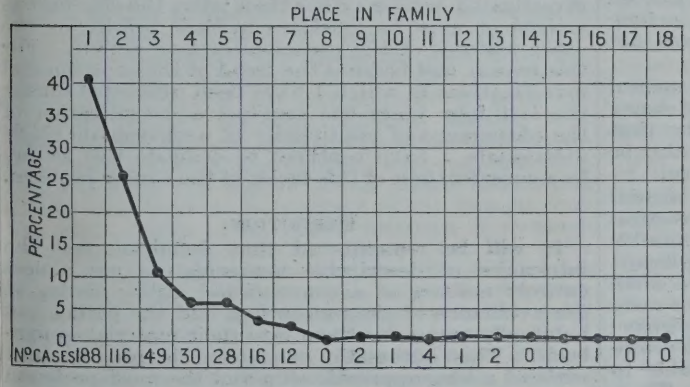
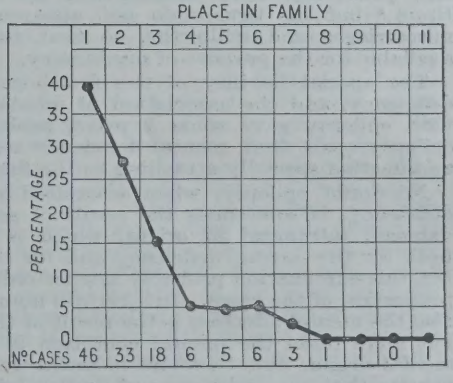


FIG. 13.—*Epilepsy (120 Cases).*



history of prematurity in some is opposed to it, and in some the labour has been particularly easy and occasionally congenital developmental anomalies have been associated with the spastic palsy, strongly suggesting that this also was due to some developmental imperfection of antenatal origin. Of 80 cases under my observation 39 were first-born, and in some of these first-born cases it was specially noted that the labour was easy and there was no asphyxia. It may be correct to regard the special incidence of spastic palsies on the first-born as due chiefly to the special difficulties of a first labour, but I would suggest that it may also be related in larger measure than has been recognised to a special liability of the first pregnancy to developmental anomalies.

MENTAL DEFICIENCY, EXCLUDING MONGOLISM.

With the spastic palsies there is often associated mental deficiency of greater or less degree, and it is certain number of cases in which primogeniture was causal only on account of the difficulty of labour.

Admitting that the exclusion of such cases, if it were practicable, would reduce somewhat the proportion of first-born, I think that it is probable, nevertheless, that the figures given here (Fig. 12) of 450 cases of mental deficiency of all varieties except Mongolism represents very nearly the place-in-family incidence. I have excluded Mongolism because this presents peculiarities of ætiology so marked, and in particular, has a place-in-family incidence so peculiar to itself, that it can be more usefully considered apart. I hope to deal with this in my second lecture. A comparison between the percentage of first-born in mental deficiency, 41·7, and that seen in the standard curve (Fig. 6) shows so great an excess of first-born among the mentally defective that even if some reduction should be made for cases due to difficulty of first labour, it is probable that there would

still remain evidence of a special liability of the first-born to mental defect of developmental origin.

Dr. A. F. Tredgold,[3] discussing the part played by abnormalities of labour in the causation of amentia, states that in his opinion "the total number of cases which are the immediate consequence of these conditions is relatively very small, being probably not more than 1–2 per cent. of all aments." He gives reasons for supposing that the proportion attributed to intranatal causes by some observers in special institutions for the mentally defective—e.g., 17·5 per cent., by Fletcher Beach and G. E. Shuttleworth—is too high when applied to mental defectives in general. I would point out, moreover, that although difficulties of labour are undoubtedly more likely to occur with the first-born than with subsequent children, it is not suggested that all the cases attributable to this cause are first-born, so that, at most, the allowance to be made for this factor in the incidence of mental deficiency on the first-born is something less than the total percentage of intranatal causation, and if Dr. Tredgold's figure is even approximately correct, would scarcely affect the significance of my statistics at all. In individual cases I have noted the association of mental deficiency in the first-born with congenital malformations of various sorts, an occurrence which might be expected, if, as I have shown, there is some special liability of the first-born to each of these conditions separately.

Before leaving the subject of mental deficiency I would point out that a very different place-in-family incidence is obtained if Mongolism is included; for Mongolism is remarkable in the lowness of its incidence on the first-born, and as 20–25 per cent. according to Dr. Thomson (with whose figures my own agree—viz., 22 per cent.) of mentally defectives are Mongols, their inclusion would reduce the percentage of first-born considerably (by 10 per cent. in the figures shown in Fig. 12).

EPILEPSY.

The frequent association of epilepsy with mental deficiency led me to investigate the place-in-family incidence of epilepsy. Since I collected my figures this point has been investigated by Dr. Russell Brain,[4] but his figures do not apparently include miscarriages and stillbirths, so that they are not available for the purpose of my inquiry.

The special liability of the first-born to mental deficiency, and the association of mental deficiency with epilepsy gave some *a priori* probability that epilepsy apart from mental deficiency might also be an affection specially attaching to the first-born.

No doubt epilepsy, when associated with mental deficiency, is sometimes the result of some cortical damage, intranatal in origin, which is responsible both for the mental deficiency and for the epilepsy, but this explanation probably applies only to a small proportion of the cases. In a certain number of cases also the mental affection is the result of the epilepsy; but more often the mental condition is of developmental origin, and therefore it seems reasonable to assume that the epilepsy is of similar origin. There is, moreover, corroborative evidence in the not uncommon association of epilepsy with congenital anomalies of other kinds that developmental disturbance is a possible factor in epilepsy even though its manifestation may be delayed until months or even years after birth. The figures which I am able to produce on this point (Fig. 13) are not sufficient to justify any dogmatic statement, but they suggest that there is some special liability of the first-born to epilepsy (38·3 per cent.).

CONCLUSIONS.

To sum up, statistical evidence seems to show that place-in-family is a factor in the causation of disease; and that a first pregnancy carries with it more risk than a later pregnancy of certain affections in the offspring which are due to perversion of development, and so far as can be judged from the variety of the developmental anomalies in which this influence of place-in-family has been traced it may probably be stated more generally that there is a special liability in the first pregnancy to the production of congenital abnormalities.

I would point out that these conclusions are not without some practical bearing. It is no small thing if we can give comfort and hope to the mother and father who are faced with disaster in their first-born, in the shape of some congenital abnormality of mind or body. They are apt to imagine that this is due to some fault or failing which will mar the rest of their married life by likelihood of repetition of disaster if they have further children. It is something to be able to tell them that primogeniture itself is a large factor, possibly the only factor in the production of their misfortune, and that it is therefore highly improbable that any subsequent child will suffer from any congenital anomaly, as indeed experience shows, for the repetition of congenital anomalies in a family, though by no means unknown, is very exceptional.

[3] A. F. Tredgold: Mental Deficiency, 3rd edit., p. 58.
[4] W. Russell Brain: Quarterly Jour. Med., April, 1926, p. 299.

Linacre Lecture

ON

MULTIPLE NEW GROWTHS.

Delivered at Cambridge on May 6th, 1927,

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WHATEVER aspect of the cancer problem may engage our attention, it is remarkable and significant how readily the discussion reverts to the general problems of nature and causation which are the ultimate subjects of cancer research. Hence it is in practice immaterial which immediate problem is investigated, sooner rather than later, the conclusions arrived at must be considerd in their bearing on the other features of the processes of new growth. For this reason, and because the trend of the experimental investigations in which I have been interested during the last four years has imposed a consideration of the phenomena of multiplicity of neoplasms in single individuals, I have ventured to dedicate this lecture to a consideration of this facies of the cancer problem.

DEFINITION.

It will be remembered that definition and the intricacies of descriptive nomenclature are almost entirely matters of a conventional utility aiming at the avoidance of circumlocution, and the pathologist habitually translates them into their material equivalents. This automatic conversion is not attained without a long apprenticeship and the most profound students of the subject are the most sensible of the pitfalls of ambiguity which lie on every side of the well-worn stereotyped phrases which inevitably intrude themselves into any discussion of the subject of cancer. Hence it comes about that at one time or another structural abnormalities of a trivial kind (often of microscopic dimensions), nævi, sebaceous cysts, nodular aggregations of the elements forming the solid and hollow viscera, have been drawn into or tacked on to, the new growths, and in this sense it is common knowledge that practically no individual is entirely free from manifestations of these processes. This impasse can only be avoided by substituting a kinetic visualisation for the static conception implied in hard-and-fast definitions. When we do this and restrict the new growths *sensu strictiori*, to progressive proliferations essentially of one kind of cell, it is possible to relegate many structural abnormalities, tumour-like in their spatial relationships, to a position

on one side of the neoplasms, keeping their proximity to them at the back of the mind.

MULTIPLICITY OR NEW GROWTH?

The coexistence of more than one new growth in the same individual has been observed and recorded on many occasions, and in recent years renewed attempts have been made to appraise its frequency by a systematic examination of the abundant material provided by the post-mortem records of large hospitals over a longer or shorter period. As was to be expected, niceties of definition have had to be introduced both as to what could legitimately be regarded as multiplicity, and what new growth. The definition of multiplicity is complicated by the inclusion in the group of new growths of two natural divisions which merge into each other, mainly distinguished by their clinical course or (to use the modern jargon) biological behaviour—viz., benign and malignant. The benign new growths progress slowly and remain localised, the malignant increase in size rapidly, encroach on their surroundings, and disseminate to remote parts of the body giving rise to metastases. In general, primary multiplicity is so common in the benign neoplasms that it is frequently regarded as presumptive evidence of the benign character of the new growths in which it is encountered. The malignant new growths, on the other hand, are usually solitary, and the late occurrence of multiple foci in those the subject of them is most frequently due to dissemination of living cells from the primary focus by the vascular channels.

Varieties of Multiplicity.

We have, therefore, to distinguish between the following varieties of multiplicity:—

1. More than one benign new growth in the same individual (*a*) of one tissue or organ, (*b*) of separate tissues or organs.

2. More than one malignant new growth in the same individual (*a*) of one tissue or organ, (*b*) of separate tissues or organs.

3. Benign and malignant new growths in the same individual.

From the slow progress and long duration of benign growths it follows that when they occur in combination with malignant tumours the benign tumour has in most cases antedated the malignant and, therefore, it may be more instructive to state the problem in the general form of the development of a second neoplasm in an organism already bearing one. Unfortunately, when dealing with post-mortem records it is obvious that it is only rarely that information is available from the history of the patient permitting a clear statement of the priority of one tumour over the other. More or less cogent inference is as much as can be expected and the collected data are quite unsuitable for statistical treatment. Hence it comes about that the published statements take the form of percentages of multiple neoplasms in the total number of autopsies in which the presence of a tumour is recorded. One of the most recent of these studies is by Puhr (1926) on the post-mortem material for the preceding 21 years of the Second Budapest Pathological Institute. In this material of 6718 necropsies there were 1559 cases with tumours and of these 219 cases presented multiple growths—i.e., 14·04 per cent. of the tumour cases. The detailed tabular analysis is divided up according as two, three, four, or five new growths were present.

Two Tumours.

Carcinoma with carcinoma	2
„ „ sarcoma	1
„ „ benign tumour	0·80
Sarcoma „ „	0·12
Benign „ „	0·52

Three Tumours.

Carcinoma with carcinoma with benign tumour	1
„ „ two benign tumours	15
Sarcoma „ „ „	5
Three benign tumours	11

Four Tumours.

Carcinoma with carcinoma with two benign tumours	1
„ „ „ three „	6
Sarcoma	1
Four benign tumours	5

Five Tumours.

Carcinoma with four benign tumours	3

Puhr draws the conclusion from the assembled data that multiplicity in the sense indicated in his tables is common enough to indicate a definite tumour diathesis, inborn or acquired, in those the subject of new growth. As can be seen, however, the main weight of this conclusion derives from the frequency of benign new growths, and it is remarkable that only five cases of multiple malignant new growths occurred out of 1559 tumour autopsies in 21 years—i.e., one every four years. It is unfortunate that Puhr has not given the number of malignant cases as distinguished from tumours generally in this total, but it seems fair to conclude that multiple malignant new growths are relatively rare. A certain interest attaches to the fact that in none of Puhr's five cases of multiple malignancy did the combination carcinoma mammæ and carcinoma uteri occur. Some years ago, when my attention was first directed to the study of multiple malignant growths, Prof. Udney Yule was good enough to make a preliminary statistical analysis of the probability of this combination occurring, on the basis of the English mortality statistics, for females. The guarded conclusion he arrived at was that the combination ought to occur in 2½ per cent. of cases if there were no mutual interference of new growth in the one organ with its incidence in the other. As cancer of these two sites make up nearly half the total female cancer mortality, it is hardly possible such a combination could be consistently overlooked, and its absence from the casuistic literature is probably significant. Tabular statements of the same kind have been compiled by Egli, Harbitz, and others. Egli records primary multiplicity in 263 (27·2 per cent.) of 966 tumour autopsies in seven years' material of the Basel Pathological Institute. In 20 cases multiple malignant growths were present. Harbitz found 16 examples of multiple malignant growth in 524 cancer autopsies (1900–15), roughly 3 per cent. Out of a much larger material (4219) examined in the Oslo Institute for the Norwegian Cancer Committee 32 examples of multiple malignancy (1 per cent.) were encountered. In most cases an interval of from five to 23 years elapsed between the development of the two tumours. Both Egli and Harbitz conclude also from the frequency of the combinations, benign and malignant, that a hereditary predisposition to tumour growth must be assumed to occur. The combination carcinoma mammæ and uteri is again conspicuously absent, and it is notable that throughout, the simultaneous presence of two of the commoner forms of cancer is rare. Usually one of the growths belongs to the group of pathological curiosities or rarities—forms which are so seldom met with that it is natural to assume an exceptional concurrence of causal factors in those the subject of them. The variations in frequency of cancer of the several organs of the body in the different races of man and animals may in part depend on the factors which limit the occurrence of multiple malignant new growths. It is pertinent to consider whether the greater incidence of carcinoma mammæ in England than in Holland, being balanced by a higher incidence of alimentary tract cancer in Dutch females producing the same total cancer mortality in both countries, may not be brought about by some such inhibitory mechanism as is here hinted at, and Neve's experience of the predominance of Kangri cancer in Kashmir (2000 out of 3000 operations) points in the same direction. It is hardly conceivable that chronic irritation of the genital and alimentary tracts which in Europe predispose to cancer of these organs should be inoperative in Kashmir.

The earlier authors viewed the problem from a somewhat narrower angle and mainly confined their

attention to the occurrence of multiple carcinomata or at most multiple malignant growths, usually of separate organs. When we recollect the violence of the controversy which raged among pathological anatomists on the unicentric and multicentric origin of carcinoma, this restriction of the discussion of multiplicity to new growths of separate organs is understandable. When we come to deal with the problem in its experimental form, the objections which are so formidable in the analysis of post-mortem material largely vanish. They were so real to the earlier workers that Billroth, for example, refused to admit primary multiplicity of malignant new growths unless: (1) the tumours had a different structure; (2) each tumour could be derived histogenetically from its own mother tissue; (3) each tumour produced distinctive metastases.

BENIGN AND MALIGNANT GROWTHS.

It was the impossibility of carrying out rigorously all three of Billroth's criteria that led to the widening of the survey to include benign as well as malignant growths. The problem lost in precision by this extension of the terrain and it may not be unprofitable to consider for a moment the reasons for this diffuseness. It is now generally agreed that the benign and malignant new growths form a natural group—they are manifestations in varying degree of the same process, and it might at first sight be supposed that it would be immaterial in investigating multiplicity of neoplasms whether benign or malignant tumours made up the combination. If, however, we accept the community of nature of the benign and malignant new growths, we must recognise that the malignant possess the attributes of the group in higher degree, and if systemic effects are produced by new growths of every kind they may easily be of such slight intensity in the case of the benign tumours that the means at our disposal may be insufficient to reveal them. On the other hand, the most malignant tumours may be the result of such an intense degree of action of the causative agency or agencies that it overcomes the influences which the pre-existence of another neoplasm (especially a benign tumour) may be presumed to oppose to it.

To escape from this dilemma we must in some way secure a simplification of the material for consideration. The most obvious restriction is to consider the occurrence of more than one tumour of the same kind in the same organ or tissue. The frequency of primary multiplicity of benign tumours of the skin and its appendages, and of the alimentary tract, of the connective tissues, and of nerve trunks, enables us to dismiss this aspect of the problem summarily. Little or no mutual interference is established by benign tumours to each other's inception or continued proliferation.

The investigations of Puhr, of Egli, and of Harbitz leave little doubt that benign tumours similarly induce little or no resistance to the development of malignant growths. In certain situations the converse would seem to be true. Thus it has frequently been observed that carcinoma of the colon has developed by an apparently progressive transformation of one only, of multiple pre-existent papillomata. Occasionally one of a number of fibromyomata of the uterus takes on a more rapid tempo of proliferation and manifests the other classical features of malignancy. The most instructive examples are met with in the occupational forms of cancer—tar, paraffin, X ray cancer. In these a preliminary condition is the occurrence of chronic dermatoses ending in benign warty proliferations. When malignant growth supervenes it usually takes its origin in one of these warty hypertrophies, and it is not uncommon to find that the operative removal of the malignant wart is followed after an interval by a similar transformation of others till then quiescent, after an interval more or less prolonged. When this happens it is pertinent to inquire why the change does not supervene in all the papillomata of the region at once, and a possible explanation of this discrepancy will be referred to later in discussing certain features of the growths produced in the experimental investigation of tar cancer in animals.

The laborious investigation of early cases of cancer of the skin, stomach, and breast has finally resolved the controversy, which has already been referred to, over the alleged unicentric or multicentric origin of carcinomata in these sites, in the sense that in the great majority of cases the final solitary character is secondary to a primary multifocal condition which ends in a single tumour by coalescence of adjacent independent foci. It is essential to keep in mind that in most cases where an exact judgment is possible the original foci are distinct and finally abut on each other and coalesce by intrinsic increase in size and not by progressive transformation of the intervening non-malignant epithelium. When the latter apparently occurs it is invariably accompanied by such a diffuse hypertrophic condition of the whole epithelium in the area concerned that the microscopical appearances are equivocal. Here again it is not easy to see why this disjunctive state of independent adjacent centres should exist on any hypothesis of the causation of the malignant process. In this primary multiplicity the malignant tumours show a community of character with the benign, the difference mainly being that in the benign the process interests a more extended area, frequently a whole system (as in v. Recklinghausen's neuro-fibromatosis), whereas the primary foci of the malignant tumours are grouped together in a restricted area. The tumours which are intermediate in character between the benign and malignant occasionally bridge this gap, as has been clearly shown for some of the rodent ulcers; primary multiplicity over a fairly wide area is not unusual in them, and sometimes a successive development of new foci at the periphery of a larger pre-existent growth can be clearly demonstrated.

TAR CANCER.

The problems presented by the occurrence o primary multiplicity in cancer are thus seen to b complex. The solitary character of the cancers o most organs is seen to be secondary, due to the fusio of a varying number of closely packed initial foci the remainder of the organ, even when the site of th antecedent pre-cancerous hypertrophic changes remaining free from independent malignant trans formation. The fact that in some forms of cance especially of the occupational varieties, the remova of the first developed focus may be followed, afte an interval more or less prolonged, by the recrudescenc of the disease in the adjoining area, suggests tha the whole area was prepared for the malignan change and somehow held in check by influence emanating from the first frankly malignant focu The time and intensity relations of the hypothetica causative agencies in the cancers occurring naturall in man are, however, so inaccessible to analysis tha the most minute scrutiny of the conditions obtainin at operation or after death only leads to a balancin of probabilities little removed from complete ignoranc The only possible way in which advance can be hope for is by experiment, and the means at our dispos at the present time centre round the reproduction i animals of the occupational forms of cancer occurrin in man as the result of long-continued action of t and other products of the destructive distillation coal. The combined results of the investigations of host of workers during the last ten years perm of the following general statements on tar cancer laboratory animals. The different species are unequal susceptible to the carcinogenic action of tar. T mouse and the rabbit are the most suceptible; t rat, guinea-pig, and domestic fowl are much le easily made the subject of cancer by the extern application of tar. When a large series of mic for example, are treated, individual differences reve themselves, a few rapidly become cancerous, t majority of the remainder develop the disease aft a longer interval, and a small refractory resid remain free from the disease even after prolong

intensive treatment. The length of time which elapses varies with the frequency of the applications within rather narrow limits. If tarring twice or three times a week results in malignant growth after four and a half to nine months, tarring once a week usually stretches out the preparatory period to 10 to 12 months at least and the refractory remainder is larger. A few susceptible animals may develop cancer after a long latent period in consequence of a single application of hot tar.

Variations in the extent of the area to which the tar is applied introduces a most interesting difference in the result. If the tar be applied to a very small area (2–3 mm. in diameter) the neoplasm arises at this point and is usually solitary, although crowded minute foci may be distinguished on microscopical examination of very early growths just as was seen to occur in many human cancers. If a larger area is tarred—for example, the whole of the skin of the back—multiple papillomata appear scattered over the surface with relatively unaltered areas of epithelium between. Not all of these apparently benign proliferations go on to definite malignant growth. Usually one or two forge ahead, grow rapidly, and produce infiltration and metastases in the classical manner. If two widely separated small areas are tarred simultaneously, two growths appear at the same time and progress at much the same rate. It is clear from this rapid summary that we have in the experimental tar carcinomata an almost perfect reproduction of the sequence of changes which characterise the biology of malignant tumours in man with the inestimable advantage that the duration and intensity of the antecedent stimulation are under control and definitely known.

In the attempt to analyse the forces in play determining the malignant transformation at one point in the treated area and holding it in abeyance at another, many variants of the fundamental experiment have been carried out. The first of those to which attention may be directed consists in tarring a small area till carcinoma develops, removing the tumour widely by operation, and beginning again in an area of unaltered skin. *A priori* one might expect either that the same duration of tarring would result in a fresh carcinoma being produced or that a shorter period of treatment might be sufficient. In the experiments I have carried out along these lines the result has been that a greatly increased resistance is encountered and only microscopic hypertrophic changes have been produced. The same indifference to tar painting manifested itself in mice from which mammary carcinomata had been removed by operation. It would seem that the development of malignant growth brought in its train a disability of the remainder of the organism, such that a course of treatment which would produce carcinoma in a normal animal was without result.

An experiment of intermediate character between simultaneous tarring of separate areas and successive tarring after removal of the tumour first produced gave remarkable results. The second tarring was begun two or three months after the first and before any proliferative changes had supervened. Two totally different results were obtained. In some animals the site of the first tarring developed carcinoma after the usual delay, and the second site remained refractory even after a longer period of tarring. In the animals in which cancer appeared either very early or very late at the first site, a second primary growth appeared at the second site either at the same time or within a month—that is, an interval less than the difference in the duration of tarring at the two sites. I have summarised these contrasted occurrences in the statement that there is a phase in the development of these skin tar cancers before the resistant condition supervenes, in which the skin more easily responds with cancerous proliferation. In other words, the experimental achievement of primary multiplicity of tar cancer in mice is mainly determined by the duration and intensity of the stimulation at the selected areas, and systemic changes affecting the sensitiveness of the remainder of the body are produced by the tumour which develops first.

The experiments of Deelman illuminate another facet of this obscure problem. Deelman has shown that if the whole dorsal surface of mice is tarred till papillomatous nodules are produced the intervening areas of skin, which if left to themselves would remain quiescent, can be awakened to vigorous malignant proliferation by the introduction of a fresh stimulus of another kind—the regeneration of wound healing. Incisions adjacent to the slowly growing papillomata heal promptly, and then all along the scar new rapidly growing nodules of carcinoma make their appearance and soon outstrip the pre-existing papillomata. It is as if the efflorescence of the papillomata had set up in their neighbourhood an inhibition which could be raised by the stimulus to cell division of wound healing.

An experiment of a different kind carried out by my colleague, Dr. Cramer, shows the influence of an apparently unrelated intervention on the ease of induction of tar cancer. Cramer excised the spleens from a number of mice, minced them up separately, and returned each to the peritoneal cavity of its own mouse. The animals so prepared showed a considerable acceleration of the induction of tar cancer as compared with normal animals, the times of appearance of the tumours in the two series showing a shift of about two months in favour of splenectomised. The nature of the influences at work in these experiments, whether favouring or hindering the development of cancer, are still unknown but are being made the subject of experiment. The attempt has been made to obtain the resistant state, on the basis of Gye's virus conception of tumour ætiology by immunising mice with fresh or incubated tumour from mice and other species of laboratory animals. So far no retardation of the induction of tar cancer has been seen. Whatever may be the ultimate outcome of the analysis of the phenomena accompanying the production of multiple experimental tar cancer, it is clear that these investigations must precede a precise conception of the reasons for the occurrence of primary multiplicity of cancer in man. Given the possibility of its occurrence, the actual capriciousness encountered is more easily entertained by the mind, if the result in individual cases is ascribed to the balanced action of several factors, some of which favour and some hinder its occurrence.

The only analogies which exist for the apparent inhibition of a second primary lesion occur in some of the infectious diseases, and it is important to keep in mind that even if the resemblance were closer than it is it need not necessarily be evidence in favour of the microbic origin of tumours. The feature referred to is that well exemplified in the infection of syphilis that the characteristic primary lesion, or chancre, cannot be produced in a patient or animal already infected. The same is true of vaccinia, but in the latter infection another phenomenon occurs when the attempt is made to infect an immune individual, that a greatly increased transient reaction occurs. It is possible that this allergic reaction may have something in common with the curious hypersensitiveness leading to acceleration in carcinogenesis mentioned in connexion with the double tarring experiments already described. Whatever may be the ultimate explanation, the opinion may be hazarded that the analysis of the factors favouring or hindering multiplicity of malignant new growths is bound up with the final elucidation of their nature and causation.

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GASTRO-JEJUNO-COLIC FISTULAS:

REMARKS ON SIX CASES.

BY IAN MACDONALD, M.D. EDIN. & PARIS.

THE gastro-jejunal or anastomotic ulcer in approximately every fifth male patient slowly perforates into the colon. The onset of this dire sequel of gastro-enterostomy is announced by four cardinal symptoms—diarrhœa, fæcal vomiting, foul eructations, and variable pain. Pain may be absent; diarrhœa is often the initial and continuous symptom.

The clinical diagnosis is seldom doubtful; confirmation may be obtained by X ray examination, when the most important sign is rapid emptying of the stomach and immediate filling of the transverse colon. The pitiable state of the emaciated patients and their profound weakness may simulate malignancy, but the horrible vomiting with its characteristic odour leaves no doubt as to the diagnosis. Operation in view of the fatal prognosis is imperative; its extent will depend on the permeability or otherwise of the pylorus and the state of the patient.

If after the original operation the pylorus is patent the minimum operation may be performed, separation and closure of the three cavities. If the pylorus is still obstructed a new gastric outlet must be provided. Gastro-duodenostomy may be possible or partial gastrectomy may be selected, but the state of the patient may compel the surgeon to another gastro-enterostomy. Theoretically gastro-enterostomy, the cause of the gastro-jejunal ulcer, should be banned; practically it may be necessary.

Difficulties of Operation.

The difficulties inherent to these operations and the risk of sepsis fully recognised by all surgeons make Pauchet[1] recommend in difficult cases the removal en masse of the right colon and the fistula, the right half of the stomach, and the jejunal loop without opening any of their cavities. He advocates this method as easier for the surgeon and safer for the patient in cases where the inflammatory mass is large and the colon strictured, when the ascending colon is dilated, and if the middle colic artery is accidentally injured. After a Polya-gastrectomy and the removal of the colon, to save time in weak patients, he advises that the sections of the terminal ileum and transverse colon should be left in the wound after Mikulicz's method. The artificial anus is closed some weeks later. We have no experience of this immediate radical operation, though in one case a wound of the middle colic artery forced us to a segmental resection of the transverse colon.

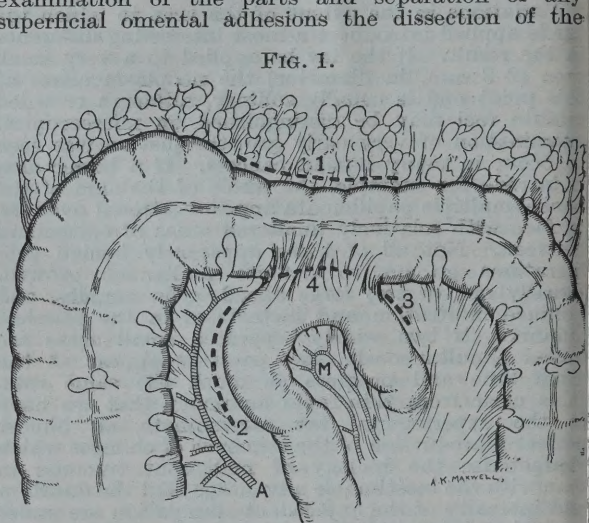
The pathology of these fistulas varies considerably. If adhesions are few the attached viscera are easily defined, but they may be buried in an inflammatory mass, so that resection of a portion of the transverse colon may be the minimum operation possible. The condition of the colon is important, for a certain degree of stricture may occur at the fistula; distally, then, the bowel is narrowed while the proximal portion is dilated and full of fæces. If resection of the colon becomes necessary the disparity between the two portions may render axial anastomosis difficult and inadvisable. The jejunal loop also contains fæces, and during its separation from the colon precautions must be redoubled to avoid soiling of the operative area.

Technique.

In the complicated operation necessary personal methods and experience will guide the surgeon. In the preoperative treatment lavage of the stomach with weak iodine solution has given us the best results. For some days previously opium is given, and the patient is allowed full diet up to the day before the operation. The anæsthetic will be selected in view of a prolonged operation in a debilitated patient. No anæsthesia has given us such satisfaction as intravenous somnifene by Fredet's[2] method combined with 6 to 8 oz. of a ½ per cent. solution of novocaine without adrenalin in the wall and peritoneum.

In our last three cases we have used this method; a trifling amount of chloroform or ether has been necessary to close the abdominal incision. If the original incision has been right paramedian we have found it best to open the abdomen in the middle line or slightly to the left, for the inflammatory mass is anchored towards that side by the short loop. After examination of the parts and separation of any superficial omental adhesions the dissection of the

FIG. 1.



1, 2, 3, 4, lines of dissection. A, middle colic artery. M, mesentery

viscera is begun, the operator's aim being to reproduce the original opening in the mesocolon by working from the periphery towards the fistula at the centre. The separation may begin by omental-colic cleavage on the upper surface of the colon or, by clearing a space in the gastro-colic omentum, to define the upper surface of the transverse mesocolon from this position. All adhesions should be divided carefully between ligatures to avoid bleeding which obscures the field.

The under surface of the mesocolon is then exposed by lifting the colon upwards. The mesocolon is carefully incised or scratched through to the right of the anastomosis, while adhesions between it and the stomach are separated by the gloved finger and the lightest strokes of the knife. The position of the loop of the middle colic artery must ever be kept in mind. If the gastro-enterostomy has been made towards the left in the mesocolon the vessel will be found first to the right of the anastomosis, then it lies hidden under the overhanging colon. The upper edge of the afferent loop should also be well defined and above it an opening may be made in the mesocolon here. As the area of cleavage advances between the mesocolon and the stomach it may be possible to pass the finger from the incision on the right behind the anastomosis to the space above the afferent loop. This manœuvre is helpful, for the finger takes the place of a supporting clamp. Balfour [3] also calls attention to its value.

The area situated below the afferent and efferent loops should obviously be avoided, for the vessels in the mesentery if injured cause troublesome bleeding. The jejunum is now separated from the colon by an incision along the line of adhesion. The colon when free is turned upwards and at once sutured, the openings in the stomach and jejunum being temporarily closed with a clamp and Chaput's forceps. A compress is laid in the opening of the mesocolon while the bowel is sutured transversely to avoid narrowing of its lumen. A guide suture is first passed at each end of the rent in the colon; traction is made on these to define the line accurately. The lowest of these sutures must be carefully placed to ensure closure of this more inaccessible angle. The mucous membrane of the fistulous colon is sometimes thick and œdematous, and is best avoided in the sutur

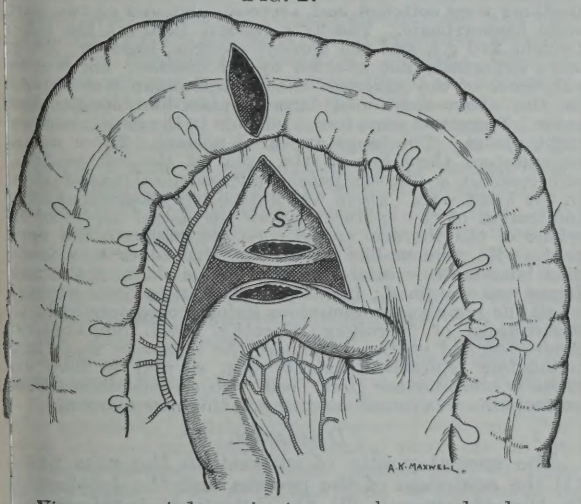
line; if included, a septic ridge remains in a closed cavity under the serous suture, favouring leakage and disunion. It is therefore inverted by passing the sutures only through the serous and muscular layers. The suturing of the irregular aperture is possibly done more accurately by separate sutures closely placed; the first layer is covered by a second; the whole circumference of the colon is then loosely wrapped in a collar of omentum brought through the opening in the mesocolon. The jejunum, separated from the stomach, is next sutured, also transversely, the angles of the opening being also carefully defined by guide sutures. Narrowing is further avoided by the bite of the needle being very near the edges of the incision.

The stomach opening is finally sutured in its long axis by a double or triple line, unless it is required for a new gastro-enterostomy. At this stage, when necessary, the new stomach outlet is made, the method being selected which the surgeon decides is best. The opening in the mesocolon, if not needed for gastro-enterostomy, is closed by a couple of sutures. The important point as to the need of cæcostomy now arises; some surgeons consider it advisable even with simple suture of the colon to avoid tension on the suture line, "when the suture of the transverse colon has been difficult and perhaps imperfect" (Balfour[3]). We have not yet employed it, but should segmental resection of the colon be necessary we consider cæcostomy essential, unless, as in our third case, a temporary anus is made near the site of the resection to rapidly terminate an operation already prolonged in a weak patient.

Results.

Operations for gastro-jejuno-colic fistulas, in spite of their complexity and the poor condition of the patients, do not show a high mortality, for in 27 cases

FIG. 2.



Viscera separated, opening in mesocolon reproduced. "S" stomach.

quoted by Bolton and Trotter [4] only six died. More recently in 20 operations at the Mayo Clinic [5] four died after the operation. But according to Loewy's[6] statistics in 63 operations of all kinds there were 11·9 per cent. of cures, 11·1 per cent. definite recurrences, and 27 per cent. of mortality.

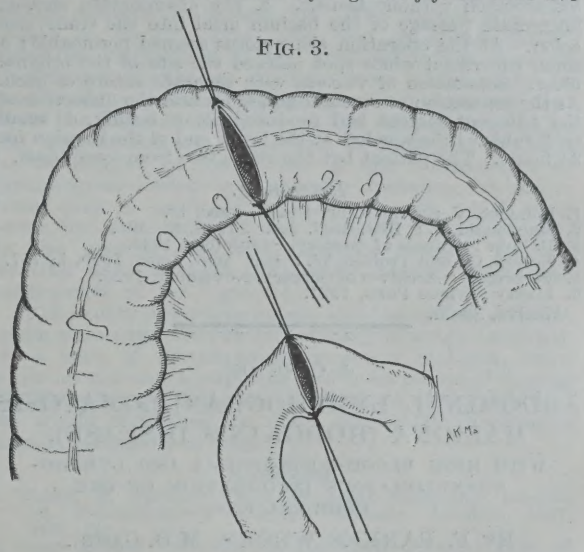
The six cases under our care all recovered, but two required further radical measures. The fistulas in all cases followed posterior gastro-enterostomy, in two cases performed elsewhere, and in two cases an entero-anastomosis had also been made. Two fistulas were jejuno-colic, in the others the colon opened directly into the anastomosis. The youngest patient was 36, the oldest 58. Their clinical histories and the operations performed for their relief are briefly recorded below. I am indebted to Mr. A. K. Maxwell for the sketches.

Clinical Records.

CASE 1.—Posterior gastro-enterostomy for pyloric stenosis seven years previously. The fistula symptoms were a painless diarrhœa and foul fæcal vomiting. At the operation the pylorus was found narrowed. The gastro-enterostomy was free and supple; the fistula was found between the efferent loop and the colon. Separation of the viscera and closure of each was performed, then a new outlet made by anterior gastro-enterostomy with entero-anastomosis. This patient at the present time, seven years later, is in perfect health.

CASE 2.—Posterior gastro-enterostomy for pyloric stenosis ten years previously, followed by a gastro-jejunal ulcer five

FIG. 3.



Transverse suture of colon and jejunum.

years after the anastomosis. Resection of the anastomosis and a new posterior gastro-enterostomy with entero-anastomosis were performed; five years later patient readmitted in a state of extreme cachexia with fæcal vomiting and diarrhœa. Separation of the viscera, resection of the entero-anastomosis, a new gastro-enterostomy with entero-anastomosis being made on the opening in the stomach. The pylorus still showed narrowing. This patient six years later reports that he is eating and drinking everything, and is quite free from gastric symptoms. His case illustrates the well-known tendency of certain patients to ulceration.

CASE 3.—Posterior gastro-enterostomy ten years before for pyloric stenosis; readmitted complaining of profound weakness, foul vomiting, and diarrhœa. At the operation some ascites was found and peritoneal tuberculosis commencing. During the separation of the viscera the middle colic artery was injured and resection of about six inches of the transverse colon became necessary. The narrowed distal end towards the splenic flexure was closed by a purse-string suture. The much dilated proximal portion was anastomosed laterally about four inches from its section to the distal part already closed, and its open end shut by a Kocher's forceps fixed in the abdominal wound. The forceps were removed 36 hours later, but the bowel functioned freely through the anastomosis 48 hours after the operation. No fæces passed by the artificial anus for ten days. One month later the artificial anus was closed by an extraperitoneal operation. This patient returned two years later looking well, but with a considerable ventral hernia and evident gastric retention from a narrow pylorus. The hernia was repaired, the dilated attached colon separated from the wall, and an anterior Polya-gastrectomy with entero-anastomosis was performed. The patient made a good recovery.

CASE 4.—Two years previously posterior gastro-enterostomy and entero-anastomosis for duodenal ulcer adherent to the liver. A year later began to complain of pain, profuse diarrhœa, and wasting without vomiting. At the operation the colon was found fixed to the abdominal wall. The efferent loop was much inflamed, a thickened mass fixing it to the colon; from this point a slight hardness passed along the anastomosis. Separation and closure of the viscera. The ulcer and peri-duodenal adhesions were still present and in addition we discovered a large dilatation of the third part of the duodenum overlooked at the previous operation. The patient's state on the table prevented further measures being taken at the time. He recovered from the operation but continued to have some gastric discomfort.

CASE 5.—Gastro-enterostomy two years previously for duodenal ulcer. Ten months after this operation had an attack of pain accompanied by melæna. The symptoms of the fistula were frequent diarrhœa and fæcal eructations without vomiting. At the operation the pylorus and duodenum seemed normal, so the viscera were simply separated and closed. The patient a year later was in excellent health and had gained about a stone in weight.

CASE 6.—Posterior gastro-enterostomy seven years previously for duodenal stenosis. Very soon after the operation discomfort began, which gradually increased till the symptoms changed to diarrhœa and foul fæcal eructations. Vomiting was rare. The patient had been washing his stomach without benefit. X ray examination showed immediate passage of the barium meal into the transverse colon. At the operation the pylorus seemed permeable; a small superficial white spot marked the site of the original ulcer. Separation of viscera, with separate suture of each. As the separation of omental adhesions and the dissection of the adherent viscera had produced some oozing, a small split rubber tube was left at the lower end of the incision for 24 hours. The patient left the clinic free from symptoms.

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Huelva, Spain.

A CASE OF

ABDOMINAL LYMPHOGRANULOMATOSIS MALIGNA (HODGKIN'S DISEASE),

WITH HIGH BLOOD-EOSINOPHILIA AND LYMPHO-GRANULOMATOUS INFILTRATION OF THE EPIDURAL FAT.

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THE case to be described was that of a young Englishman, H. W. M., a printer, aged 36 years, admitted to the German Hospital on April 23rd, 1927.

Clinical History.

Three weeks before admission he had begun to suffer from severe pains in the region of the left shoulder, gradual loss of strength and cachexia, with muscular weakness in the arm of the painful side. Previously to that he had apparently enjoyed good health. The Wassermann and Pirquet reactions were negative, and the intracutaneous reaction with an echinococcus antigen was likewise negative. Examination (including Rontgen ray examination) of the thorax showed nothing abnormal. There was considerable general wasting, but the wasting was slightly more marked in the left upper limb than in the right. All the deep nervous reflexes on both sides were "active," but those in the left upper limb rather more so than those in the right. (It should be remembered in this connexion that all the deep reflexes are often exaggerated in chronic cachectic wasting subjects.) The knee-jerks on the two sides were equal. Babinski's sign was negative on both sides. Ophthalmoscopic examination showed nothing abnormal.

In the hospital, owing to the presence of a chronic sometimes remittent and sometimes intermittent type of pyrexia (up to about 101° F. in the afternoons) and a high blood-eosinophilia (up to about 40 per cent. of the white cells), and in the absence of any obvious cause for a high blood-eosinophilia, the possibility of early lymphogranulomatosis maligna was thought of, but enlarged lymphatic glands could not be detected anywhere. The liver was not enlarged and the spleen could not be felt. A few days after admission, however, a rather small, hard, immobile mass could be felt by deep palpation a little to the left of the centre of the abdomen, possibly arising from retroperitoneal lymphatic glands. The pain in the left shoulder and the weakness in the left upper limb were no longer complained of, but in May there was considerable lumbar pain, probably connected with the abdominal "tumour" (which later on, at the post-mortem examination, was found firmly adherent to the vertebral periosteum, doubtless having been pressing on and commencing to erode the vertebræ). The "tumour" rapidly increased, until it became almost as large as a man's head, whilst the patient became extremely emaciated and progressively weaker. He died on June 18th, 1927, about 11 weeks after the first symptoms of the disease were complained of. At the end there was a small non-sanguineous serous effusion in the right pleura.

The diagnosis of lymphogranulomatosis maligna was further confirmed a little before the patient's death by the development of intense general cutaneous pruritus with scratching. Owing to occult blood in the fæces the presence of intestinal ulceration of lymphogranulomatous nature had been likewise suspected.

Following are blood-counts made during life:—

Date in 1927.	Hæmoglobin per cent.	Erythrocytes per c.mm.	White cells per c.mm.	Eosinophils per cent.	Polymorpho-nuclear neutrophils per cent.	Lymphocytes per cent.	Monocytes per cent.
April 25th..	63	4,584,000	9,200	20	58	15	7
May 5th ..	—	—	—	45	37	11	7
May 10th ..	60	4,496,000	8,300	26	59	7	8
May 23rd ..	61	4,400,000	6,900	34	56	8	2
June 14th ..	75	4,400,000	11,000	36	53	7	4

Repeated blood-counts early in May showed an eosinophilia averaging 40 to 50 per cent. of the total white cells. The thrombocyte-count (May 12th, 1927) was about 270,000 per c.mm. of blood.

The treatment was arsenical. Rontgen ray treatment at another hospital was advised, but when a vacancy occurred he had temporarily left our hospital and missed the chance. He was much worse when readmitted five days before his death. He was away from May 30th to June 13th.

Necropsy.

Examination showed a conglomerate mass of enlarged lymphogranulomatous and partly necrotic retroperitoneal lymph glands, firmly adherent to the vertebral column, almost as large as a man's head, together with two ulcerated lymphogranulomatous plaques in the wall of the jejunum. On section (macroscopically) the conglomerate mass appeared lobulated, and in most parts it was white and hard, but portions were softened and necrotic, and one or two parts were hæmorrhagic. The liver (weight 1260 g.), the spleen (weight 240 g.), and the kidneys (weight, together, 350 g.) were apparently not affected by the disease; nor was the substance of the pancreas, though this organ was included in the above-mentioned large tumour-like conglomerate mass. There was some serous effusion in the peritoneum and right pleura. The lungs appeared normal. There was an antemortem thrombus in the apex of the left ventricle adherent to a fibrotic patch (microscopical examination) in the heart wall. There was diffuse lymphogranulomatous infiltration of the epidural fat on the dorsal aspect of the whole of the thoracic spinal cord, especially in the upper part. No tumour-like growth in the bones was found. The bone-marrow in the middle of the shaft of the right femur was examined; it was red. The microscopic structure of all the lymphogranulomatous lesions corresponded to the descriptions of Sternberg, Dorothy Read, Sir Frederick Andrewes, and others. Amongst the cells were many large uninuclear (epithelioid) giant cells, as well as here and there a multinuclear giant cell. No striking local (tissue) eosinophilia was found excepting in the bone-marrow.

Discussion.

The special points of interest in the case were (1) the acuteness of the process and the localisation in the abdomen; (2) the intestinal involvement; (3) the high blood-eosinophilia and the intense pruritus at the end; (4) the lymphogranulomatous infiltration of the epidural fat.

(1) *Acuteness of the Process and Localisation in Abdomen.*—Although the retroperitoneal lymphatic glands were probably affected for some time before the onset of subjective or objective symptoms, the process was extremely acute when compared to most other cases of the disease. Nevertheless, cases of so-called "acute Hodgkin's disease" have been described by various writers, and by one of us (F. P. W.) many years ago.[1] The retroperitoneal lymphatic glands are often affected in lymphogranulomatosis maligna, but they are relatively seldom the first group of glands to be affected. In cases in which they were apparently primarily affected—so-called "abdominal Hodgkin's disease"—the main symptom during life has sometimes been a periodic pyrexia of the Pel-Ebstein type,[2] and

diagnosis of Hodgkin's disease has not always been made during life, at all events in the early stages, when the superficial lymphatic glands were not enlarged and when no definite swelling in the abdomen could be made out. It has been suggested that in cases in which the abdominal glands are first affected the unknown microbic agent of the disease has entered the body by way of the alimentary canal. Whether this suggestion be correct or not, it is highly improbable that in the present case the relatively small lympho-granulomatous plaques in the jejunum represented the primary infection or "port of entry" of the disease. Another question is whether the present case could be called one of "Hodgkin sarcoma" (after J. Ewing) as distinct from "Hodgkin granu-loma."[3] This we would leave undecided.

(2) *Intestinal Involvement.*—The intestine is rarely involved by the lymphogranulomatous process, but in the unpublished case of a man in the prime of life kindly described to us by Prof. W. Bulloch, the intestinal involvement led to such extensive intestinal ulceration as to hasten the fatal termination.

(3) *High Blood-eosinophilia and Intense Pruritus at the End.*—Local eosinophilia ("hist-eosinophilia") in lymphogranulomatosis maligna is sometimes extreme as it was in a case of mediastinal localisation described by Weber and Ledingham,[4] though in that case the blood-eosinophilia ("hæm-eosinophilia") was not above 10 per cent. in the differential count of the white cells at the times when the blood-counts were made. The collected results of clinical and experimental observations on the subject of eosino-philia make it seem probable that in local eosinophilia the eosinophil cells are carried to the affected parts by the blood stream from the bone-marrow, and that they are probably derived from the eosinophilic myelocytes in the bone-marrow. Eosinophilia is to be regarded as part of a general, protective, allergic reaction towards the presence in the body of foreign proteins or abnormal products of albuminous catabolic metabolism within the body. The extensive necrotic changes in lymphogranulomatosis maligna (due to the lymphogranulomatous process itself) are probably the cause of the local and general (blood) eosinophilia observed in varying degrees at various stages of the disease. Nevertheless, a persistent high blood-eosinophilia, such as was a feature of the present case, is very rarely met with. In the above-mentioned case, of which Prof. Bulloch kindly told us, there was for a time a still higher blood-eosinophilia than in our case, and in that case, as in ours, the lympho-granulomatous process had likewise involved the intestine. It may turn out that in the very rare cases of lymphogranulomatosis maligna with excep-tionally high blood-eosinophilia the intestine is invariably involved. Probably the intense universal pruritus constituting the most striking clinical feature of certain cases of lymphogranulomatosis maligna—the so-called "prurigo lymphogranulomatosa"[5]—is due (like eosinophilia) to harmful products of the lymphogranulomatous process circulating in the blood stream. The pruritus, when it occurs, is a characteristic symptom of early stages of the disease, seldom occurring in the final stages. A very high blood-eosinophilia, when present, may disappear in later stages of the disease, as it did in the above-mentioned case of Prof. Bulloch, the protective "eosinophilic mechanism" (if we may use the term) having perhaps become worn out or exhausted.[6]

It may be noted that a sometimes valuable blood-sign in early Hodgkin's disease—namely, a leuco-cytosis of the polymorphonuclear neutrophils—was absent in the present case.[7] However, we believe that blood-counts are mostly of *negative* value in the differential diagnosis of Hodgkin's disease—that is to say, as helping to exclude leukæmic and certain other infections.

(4) *Lymphogranulomatous Infiltration of Epidural Fat.*—The cases of lymphogranulomatosis maligna in which lymphogranulomatous infiltration of the epidural fat was observed have been collected and discussed by F. Parkes Weber in the *Quarterly Journal of Medicine* (Oxford) and later on again in *International Clinics* (Philadelphia). In Parkes Weber's original case (a young man who had long been under observation with typical Hodgkin's disease in the lymphatic glands of the neck) paraplegic symptoms occurred at the end, and a post-mortem examination revealed the presence of lymphogranulomatous infiltration of the epidural fat. In some cases (though not in the present one) the infiltration of the epidural fat has been associated with a remarkable symmetrical lympho-granulomatous infiltration of the periosteum in front of (ventral to) the vertebral centra, and this association should always be looked for. The reason why the motor or sensory symptoms due to lymphogranu-lomatous infiltration of the epidural fat in cases of lymphogranulomatosis maligna may occasionally be remittent, or pass off (compare certain cases reported from the London Hospital at the annual meeting of the Association of Physicians in 1926), is perhaps to be sought in variations in the turgescence of lymphogranulomatous parts (for instance, as some-times seen in cervical lymphatic glands), which may occur independently of any local X ray treatment. In the present case the patient's extreme general wasting and cachexia may have caused diminished turgescence of the "growth."[8]

If the central nervous sytem and the epidural spinal space were examined systematically in every necropsy on a case of lymphogranulomatosis maligna, even when no nervous symptoms had been recorded during life, lymphogranulomatous infiltration of the epidural fat would doubtless be more frequently discovered than it hitherto has been.

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COMPRESSION PARAPLEGIA IN LYMPHADENOMA.

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THE late Sir William Osler,[1] in discussing the ætiology of slow compression of the spinal cord, mentions Hodgkin's disease among its causes, and H. Thursfield[2] says that paraplegia from pressure on the spinal cord is known to occur in lymphadenoma. Nevertheless, published cases of paraplegia from lymphadenoma are infrequent, and this fact warrants a description of the following case.

History.

The patient, a surveyor, became ill at the age of 43. Night sweats commenced in August, 1925, nearly a year

before death. Six months before death "pain in the back and weakness of the legs" was his complaint, and at this time he temporarily lost the use of the legs and arms.

On examination the heart was found to be dilated, the spleen palpable, and the liver enlarged; the urine was normal; a white blood-count gave 4800 leucocytes per c.mm. Careful examination of the nervous system showed no abnormality. During the next month paralysis of the muscles of both upper arms set in, and examination of the nervous system on Jan. 26th, 1926, showed: Cranial nerves, normal. Arms: right deltoid (C. 4, 5, 6), paralysed; right trapezius (C. 2, 3, 4), weak; right triceps (C. 6, 7, 8), weak; right infra-spinatus (C. 4, 5, 6) and supra-spinatus (C. 4, 5) active. All the muscles of the left arm appeared to act normally, but the deep reflexes were absent in both arms. Sensory examination of the arms revealed no objective changes, but there was a complaint of pain in the region of the left scapula and in the back of the neck. Legs: the knee-jerks were weak, the ankle-jerks just obtainable, and the plantar responses were both flexor. Sensory system of the trunk and legs normal. No abdominal reflexes could be obtained. The spleen and liver were still enlarged.

A few days later the right biceps (C. 5, 6) failed, and lymphatic glands became palpable in the left anterior triangle of the neck. A blood-count, dated Feb. 19th, 1926, showed: red cells, 5,520,000 per c.mm.; hæmoglobin, 98 per cent.; leucocytes, 4500 per c.mm. No differential count was done at this time.

By Feb. 23rd, 1926, the liver was slightly, and the spleen markedly, enlarged. Examination of nervous system showed: Optic discs and cranial nerves normal, pupils irregular in shape, no sensory loss, paralysis and wasting of the right deltoid (C. 4, 5), right supra-spinatus (C. 4, 5) and infra-spinatus (C. 4, 5, 6). The right biceps (C. 5, 6) was feeble. The left deltoid (C. 4, 5, 6) and left biceps (C. 5, 6) were paralysed but not wasted. There were no deep reflexes in the upper arms. The ankle-jerks were absent, the knee-jerks just present, and the plantar responses flexor. The cerebro-spinal fluid was slightly straw-coloured, contained six cells per c.mm., showed spontaneous coagulation, and had an albumin content of 0·3 per cent. (normal = 0·04 per cent.). Sir James Purves-Stewart, who examined the case, said that these findings suggested a deposit pressing on the anterior roots of the fifth cervical segment, beginning on the right and extending to the left. The blood at this time showed a commencing anæmia of indefinite character: red cells, 4,500,000 per c.mm.; hæmoglobin, 85 per cent.; colour-index, 0·9; white cells, 7500 per c.mm. The corpuscles were of normal types. A differential count gave: neutrophils, 59 per cent.; lymphocytes, 33 per cent.; hyalines, 7 per cent.; eosinophils, 1 per cent.; basophils, 0.

Subsequently the glands in the left side of the neck continued to enlarge. By April there was weakness of the muscles of the neck, and glands were palpable in both axillæ. In May it was found that there was numbness from the level of the distribution of the tenth dorsal nerve downwards. Retention of urine necessitated catheterisation. During this time the general condition was deteriorating, and the legs gradually became completely paralysed, with absence of knee- and ankle-jerks, and a double extensor response. Sensory loss came on gradually from the level of the tenth dorsal root distribution downwards. An extensive bed-sore appeared on the sacrum and extended rapidly. He died with broncho-pneumonia in July, 1926; the duration of his illness was about 11 months.

Post-mortem Examination.

Autopsy on the day following his death confirmed the diagnosis of lymphadenoma with multiple deposits in the spinal canal. The axillary, cervical, tracheo-bronchial, aortic, mesenteric, and inguinal glands showed lymphadenomatous enlargement, which was confirmed by the microscope in the case of the axillary and bronchial glands. There were also enlarged glands in the portal fissure. An old healed tuberculous gland was found in the mesentery. There was terminal acute pericarditis, pneumonia, and nephritis. The liver was greatly enlarged, weighing 5 lb. 12 oz., and it exhibited fatty degeneration and a number of whitish, fairly well-defined areas of lymphadenomatous deposit. The spleen weighed 1 lb. 12½ oz., and showed similar areas. Sections of liver and spleen showed typical lymphadenoma.

There was lymphadenomatous infiltration of the back muscles (confirmed by microscope) under the trapezius, which had spread into the spinal canal at two levels, apparently by way of the intervertebral foramina, which were filled with deposit, the bones themselves not being invaded. The levels at which invasion of the spinal canal had occurred were (1) at the sixth and seventh dorsal spines, and (2) at the first and second dorsal spines. A mass of pinkish-purple tissue, about 2 inches long, lay on both sides of the seventh dorsal spine. A similar but larger mass lay about the lower cervical and first dorsal vertebræ on both sides, invading the muscle-tissue and extending 2 inches from the mid-line into the muscle on the left side. The deposits in the spinal canal did not penetrate the membranes of the spinal cord, but formed purplish, grey, rather translucent masses lying inside the canal on its anterior wall, adherent to the dura, and extending upwards and downwards from the points of entry. In this manner there was compression of the spinal cord and probably also of the spinal nerves. There were no deposits in the bodies of the vertebræ, as are sometimes found.

Discussion.

F. Parkes Weber has recently summarised the published cases of paraplegia in Hodgkin's disease,[3] and has himself fully described a case, giving details of the post-mortem examination.[4] Certain points seem worthy of further discussion.

1. Although compression of the spinal cord or of the cauda equina is the usual explanation of paraplegia in cases of lymphadenoma, this is not always so, as the following case, described by G. A. Allan and J. W. S. Blacklock,[5] illustrates:—

> The patient, a woman of 44, died of Hodgkin's disease with paraplegia, bed-sores, and septic meningitis. Post mortem no lymphadenomatous deposits were found in connexion with the spinal cord. There was incomplete degeneration of the crossed pyramidal tracts above the mid-dorsal region; below that level there was myelitis with complete degeneration of the pyramidal tracts.

Parkes Weber has suggested as an explanation for these cases of involvement of the spinal cord not due to compression that deep Rontgen ray treatment may give rise to transverse degenerative changes in the spinal cord. Allan and Blacklock's case does not support this suggestion, but other cases might have this explanation. Thus J. A. Ryle supplied Parkes Weber with notes of a case of Hodgkin's disease treated with deep Rontgen ray therapy. This patient quite suddenly lost all power in his lower limbs, and later died with paraplegia. Post mortem there was nothing exerting pressure on the spinal cord, but at the level suspected there was simple softening of the cord over an area of two or three inches.

2. In our case described above the lymphadenomatous deposit appeared to grow into the spinal canal by a process of invasion through the intervertebral foramina. Exactly the same was noted by H. L. Tidy in a case of Hodgkin's disease with paraplegia. The necropsy notes written by J. Bamforth state that "... growths were present in the spinal canal on the posterior aspect of the cord extending from the sixth to the tenth dorsal vertebræ. Four processes were present on each side of this mass and were due to the fact that the growth had made its way into the canal through the spinal foramina. With increase in size, fusion between the various portions of growth from different points of entry had evidently taken place."[6] It was also noted that there were small nodules of growth in the erector spinæ in the lower dorsal region, and at the post mortem lymphadenomatous infiltration of the back muscles (erector spinæ) near the points of entry into the spinal canal was noted. Such findings do not seem to have been recorded in any other cases. The finding of lymphadenomatous deposits in muscle is by no means common.

3. Parkes Weber in his summary refers to 13 cases of paraplegia complicating lymphadenoma, and mentions also one case of Hodgkin's disease with upper limb involvement. The present case illustrates involvement of both upper and lower limbs. Analysis of all these cases (of paraplegia) gives the following summary of the various pathological findings in paraplegia associated with lymphadenoma:—

(*a*) *Lesion due to compression of the cord.*—(1) Deposit in the epidural tissue pressing on the spinal cord or on spinal nerve roots (five cases). (2) Erosion of the bodies of vertebræ by lymphadenomatous growth (two cases). (3) Invasion through intervertebral foramina (two cases). (4) Deposit in the spinal dura mater (one case, and one in which the diagnosis is doubtful).

(*b*) *Disease of the spinal cord other than compression.*—(1) Myelitis (two cases). (2) Syringomyelia (one case).

4. Invasion of the nervous system in Hodgkin's disease is perhaps not so rare as is usually supposed. Thus in a series of 36 patients with this disease observed at Montefiore Hospital during the years 1914–25, ten patients showed invasion of the nervous system.[7] The cases in this series could not be included in the foregoing analysis of pathological findings because in many of them no autopsies were performed, and in the others the details are insufficient.

Our thanks are due to Sir James Purves-Stewart, Dr. A. E. Barnes, and Mr. C. T. Neve for permission to make use of their clinical notes on this case.

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A CASE OF TRANSIENT PARAPLEGIA IN HODGKIN'S DISEASE.

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THE literature on this subject is scanty. F. Parkes Weber [1] states there are very few definite cases of this complication on record. He records one case in which post mortem revealed lymphogranulomatous thickening of the periosteum of the vertebræ, and quotes six cases from other authors, one of the latter being doubtful. In the addendum to this paper a further four cases are mentioned, one of which (Dr. J. R. Charles's case) developed spastic paresis, which recovered and had not returned up to the date of death four years later. This recovery was due, it is suggested, to X rays and arsenic. There was no autopsy.

A case is also recorded by G. A. Allan and J. W. S. Blacklock [2] where spastic paraplegia with sensory change took place. Shortly before death the woman developed a paresis of the left arm and face, shortly followed by a complete hemiplegia. Post mortem an acute meningitis with purulent infiltration was found, extending down over the base and upper cord. There was no histological evidence of lymphogranulomatous tissue in any section of the central nervous system. These authors consider that the meningitis could only be responsible for the terminal symptoms.

The following case has some interesting features.

History.

The patient was a warehouseman aged 34 years. Since his discharge from the army in 1919 he had suffered from lack of energy, pain in the chest, and cough. About Christmas, 1922, he noticed a small lump in the left supraclavicular fossa; this subsided in a week or two. It reappeared in February, 1923, and afterwards steadily increased in size. The condition was thought to be tuberculous, and he was sent to a sanatorium. After three months there the diagnosis was revised, and he was admitted to the London Hospital under Dr. Robert Hutchison on June 6th, 1923. He then had a mass of matted glands in the left supraclavicular fossa and one solitary gland in the left groin. One of the former was excised, and the condition was found to be Hodgkin's lymphogranuloma. There was no slight secondary anæmia, but no enlargement of either spleen or liver. The mass in the neck subsided under X ray treatment, and he was discharged improved. He was kept under observation as an out-patient in the medical and radiological departments, and was able to continue his work until July, 1925, when he began to have chronic pains in the stomach and left groin. These became worse, and prevented him from walking any but short distances. About Sept. 1st he noticed that his left leg was numb and cold, and that it appeared weaker than the right. He was admitted Sept. 5th.

[1] Quart. Jour. Med., 1923, xvii., 1.
[2] Glasg. Med. Jour., 1925, ciii., 115.

Examination.—He was a pale, wasted man. Several small fairly discrete glands, varying in size from a pea to a thrush's egg, were present in both supraclavicular fossæ, the left axilla, and both groins. The spleen extended two fingers-breadth, and the liver three, below the costal margin.

In the nervous system the abdominal reflexes were absent, whilst the knee-jerks and ankle-jerks were increased and equal. The plantar reflexes were: right, doubtful flexor; left, extensor. There was no sensory change. Motor power was decreased in both legs, especially the left.

Course.—The condition progressed slowly, and on Oct. 6th spasticity was marked in both legs, and there was a bilateral extensor response. Patellar and ankle clonus were also present. Voluntary movement was weaker, the left leg being almost powerless. On Oct 29th the reflexes were less brisk and, though the bilateral extensor response remained, no clonus was elicited. By Nov. 18th the right plantar response was flexor, and the left ankle-jerk was not obtained. A week later both toes were downgoing and the knee- and ankle-jerks were normal. From this time onwards the condition of the patient became progressively worse and he died on Jan. 4th, 1926. No further evidence of paraplegia was found.

The blood counts showed a progressive anæmia, that on Dec. 8th being: red cells, 2,200,000; hæmoglobin, 35 per cent.; colour-index, 0·8; white cells, 8200.

The Wassermann reaction was negative.

The patient had two doses of X rays, on Sept. 28th and Oct. 2nd, and was on arsenic (liq. arsen. hydrochlor. ℥ iii., t.d.s.) up to September and again from Dec. 8th. It would seem, therefore, unlikely that either of these forms of therapy played a part in his recovery from paraplegia.

Post-mortem Findings.

The following is a summary of the findings. Hodgkin's lymphogranuloma of greatly enlarged and matted left lumbar and left iliac lymphatic glands, and glands around cardiac end of stomach, of moderately enlarged right lumbar and iliac, paræsophageal, bronchial, and upper cervical glands, and of slightly enlarged gastrocoronary and left inguinal glands. Hardbake spleen. Lymphogranulomatous nodules numerous in liver and sparse in marrow of right femur. Partial degeneration of dorsal, pyramidal, and peripheral tracts of spinal cord, and pigmentation of cells of anterior horns; œdema and anæmia of brain. Œdema and emphysema of lungs, with collapse of lower posterior borders. Bilateral pleural effusion; ascites; œdema of kidneys, heart, pancreas, intestines, brain, marrow of femur, and ankles. Parenchymatous degeneration of kidneys. Simple atrophy of myocardium. Slight general atheroma of arteries. Fibrous obliteration of lumen of appendix. Marginal hæmorrhoids. Red marrow throughout humerus and lumbar vertebræ, in upper half of femur, and in a few small areas in tibia. Extreme wasting. No lymphogranulomatous infiltration of brain, spinal cord, meninges, or vertebræ.

Microscopical Examination of Spinal Cord.—Sections were taken of the second, sixth, and seventh cervical, first, fifth, and ninth thoracic, second lumbar, and first sacral segments, and were stained with Ehrlich's hæmatoxylin and eosin, with Weigert's iron-hæmatoxylin and van Gieson's mixture, with Weigert's fuchselin and lithium carmine and by the Weigert-Pal method.

In all segments most of the cells of the anterior cornua are pigmented. The neurochromatin usually forms an ill-defined net. Occasional cells are swollen and very feebly stained. Reduction in size of the cells is not obvious. There is no inflammatory infiltration of the meninges or of the substance of the cord. There is a definite loss of myelin in the columns of Goll in the cervical cord and in the central part of the dorsal columns in the thoracic and lumbar cord. This is associated with slight gliosis and a few fat-granule cells. In the second cervical segment there is a small patch of slight degeneration in each ventrolateral column opposite the ventral surface of the anterior horns, and a small patch of slight loss of myelin in the left lateral pyramidal tract. In the other segments the sections stained by the Weigert-Pal method show pallor in the periphery of the cord, especially in the dorsal cerebellar and adjacent part of the lateral pyramidal tracts. In the first sacral segment the degeneration of the lateral pyramidal tracts appears to be more definite.

Discussion.

The chief lesion is thus a slight degeneration in the columns of Goll in the cervical cord, and in the central part of the dorsal columns in the remainder of the cord. There is also slight degeneration in the ventrolateral and left lateral pyramidal tracts in the upper cervical region, and in both lateral pyramidal tracts

in the sacral region, and a slight degeneration of the cells of the anterior horns throughout the cord. In character and distribution the lesions do not correspond to those in any of the recognised systemic degenerations of the spinal cord. It is reasonable to suppose that the Hodgkin's disease was directly or indirectly responsible for them.

There are three ways in which theoretically the Hodgkin's disease could cause a degeneration of the kind found in the spinal cord: (1) by liberation of toxins; (2) by pressure of granulomatous tissue upon the vessels supplying the spinal cord; or (3) by causing general anæmia. Of toxins there is no direct evidence. Mechanical ischæmia appears to be excluded by the findings at necropsy; the only spinal arteries likely to have been subjected to pressure by the granuloma were the left lumbar. Of general anæmia there is positive evidence; secondary anæmia was found on examination of the blood as early as June, 1923, and it was found to be very severe in September and December, 1925.

In view of the interesting nature of the case, I investigated the hospital records of lymphogranuloma for the past 20 years. Only four cases were found in which there was definite record of spinal involvement. Of these only one came to autopsy.

This patient, a boy, aged 14, gave a history of ten months' duration. He was readmitted to the London Hospital May 5th, 1911, because of weakness and numbness of his legs. He had very widespread Hodgkin's disease, with spastic paraplegia and some analgesia. His condition became rapidly worse, and he died on May 30th. Post mortem, widespread Hodgkin's disease was found, but there was no sign of it having involved the vertebræ or cord. The paraplegic signs were due to syringomyelia. Cavitation extended upwards from the right side of the upper part of the ninth thoracic segment to the left side of the third segment. The central canal was absent in places.

Of the other three, one, a woman of 36, had in addition to spastic paraplegia at first indefinite analgesia and later complete loss of sensation to heat, cold, and pain up to the seventh dorsal distribution. She died at home shortly after discharge, no change in the signs having been observed meanwhile. Another, a boy, aged 18, showed extensive changes, and the sense of touch was also affected. X ray showed extensive destruction of the upper dorsal and lower cervical vertebræ. The last, a girl of 15, showed gross sensory change up to the sixth dorsal roots and spastic paraplegia.

I am indebted to Prof. H. M. Turnbull and Dr. A. B. Bratton for the whole of the pathological details.

SIX CASES OF

SPONTANEOUS OR FORCEPS DELIVERIES

FOLLOWING PREVIOUS CÆSAREAN SECTIONS.

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THE following six cases are taken from the records of the Obstetrical and Gynæcological Unit at the Royal Free Hospital. They are interesting because in all of them the uterus stood perfectly the strain of either a spontaneous or forceps delivery after Cæsarean section and in one case after two previous Cæsarean sections. The sutures used in the different cases varied; both chromicised catgut and No. 4 silk apparently produced an adequate uterine scar, even when in one case there was sepsis during the puerperium. It is probable, however, that unabsorbable sutures are to be preferred, owing to the formation of autolysing ferments during involution which destroy catgut.

The Cases Described.

CASE 1.—A woman, aged 27. Her first child was delivered in 1922 by Cæsarean section at term on account of a central placenta prævia. There was a history of one slight attack of hæmorrhage a few weeks previous to admission. She was admitted from the antenatal clinic on account of hæmorrhage, and was not in labour. The presentation was a right occipito-posterior and the head was high but could be pushed into the pelvis. The pelvic measurements were: *A.I. 8, I.C. 10, Ext. C. 7¾, P.I. 3¾. On vaginal examination the pelvis showed slight general contraction and flattening, the promontory being just palpable. Cæsarean section was performed at once. The child was a healthy male weighing 6 lb. 15 oz. The sutures used for the uterus were chromicised and fine catgut. The puerperium was normal and the condition on discharge was satisfactory to both mother and child.

Her second pregnancy took place in 1923, a year later. She had a normal antenatal period. The head was high and did not push into the pelvis. The presentation was left occipito-anterior and Cæsarean section was performed at term. A healthy male child was delivered weighing 7 lb. ½ oz. Hæmorrhage was rather profuse. The sutures used were No. 4 silk and fine catgut. The puerperium was febrile. The condition on discharge was satisfactory to both.

The third pregnancy took place in 1927. The antenatal period was normal. Labour occurred at term, and was spontaneous and very rapid. The presentation was right occipito-anterior, the head pushing easily into the pelvis. The first stage lasted 7 hours, the second 45 minutes, and the third 15 minutes. The child was a healthy male weighing 8 lb. 1 oz. There were no complications beyond a second degree laceration of the perineum. The puerperium was normal and the condition on discharge satisfactory to both.

This case is interesting in that it now seems probable that the second Cæsarean section was performed unnecessarily and that the patient would have delivered herself naturally. Chromicised catgut and silk sutures were used and both seem to have been entirely satisfactory in producing healthy scars in the uterine wall.

CASE 2, that of a 2-para, aged 32, is somewhat similar. Her first child was delivered in 1923 by Cæsarean section for central placenta prævia. Pelvic measurements were *A.I. 8¾, I.C. 10½, Ext. C. 7½, P.I. 3½. The pelvic walls were rather easily felt. The child was a male weighing 6 lb. 6 oz., slightly premature. It survived only 24 hours. The puerperium was febrile, partly due to a coliform urinary infection, and partly to sepsis, uterine drainage being poor. The uterus was cleared of clots manually 20 days following the Cæsarean section. After this the patient made an uninterrupted recovery. The sutures used in this case for the uterine wall were No. 4 silk and fine catgut.

Her second pregnancy was at term in 1926. She was normal in the antenatal period. The presentation was right occipito-anterior. Delivery was effected by forceps in order to avoid the risk of rupturing the uterus owing to delay in the second stage accompanied by severe pains. There were no complications beyond a vaginal laceration. Labour lasted 11 hours (first stage 8½ hours, second stage 2 hours, third stage 30 minutes). The child was a healthy male weighing 6 lb. 8 oz. The puerperium and condition on discharge were satisfactory to both mother and child.

CASE 3.—A woman, aged 23, was admitted at term in labour with her first child in 1922. The pelvic measurements were: *A.I. 8½, I.C. 10, Ext. C. 7½, P.I. 4. On vaginal examination the promontory was not felt and the pelvis was of the small round type. The presentation was a footling breech. The membranes were ruptured. One hour later the umbilical cord prolapsed. Cæsarean section was performed at once. A male child, healthy, and weighing 4 lb. 15 oz., was delivered. The hæmorrhage was rather profuse. The sutures used were chromicised and fine catgut. The puerperium was normal and the condition on discharge was satisfactory to both mother and child.

The second pregnancy was in 1924 at term. The antenatal period was normal. The presentation was a right occipito-posterior. After rupture of the membranes had taken place manual rotation was performed and the child was delivered spontaneously as right occipito-anterior. The child was a healthy female weighing 6 lb. 2½ oz. There were no complications excepting a vaginal laceration. Labour lasted 17½ hours (first stage 12½ hours, second stage 4 hours 15 minutes, third stage 45 minutes). The puerperium was normal and the condition on discharge satisfactory to both

* A.I. = Anterior interspinous diameter.
P.I. = Posterior interspinous diameter.
Ext. C. = External conjugate diameter.
I.C. = Intercristal diameter

The third pregnancy took place in 1927 at term. The antenatal period and labour were normal. Delivery was spontaneous as a persistent left occipito-posterior. The child was a healthy female weighing 4 lb. 12 oz. Labour lasted 20¼ hours (first stage 19 hours, second stage 55 minutes, third stage 20 minutes). The puerperium was normal and both mother and child were discharged well.

CASE 4.—The patient, aged 32, had had three normal labours at term and one miscarriage. Her fourth pregnancy was normal. The pelvic measurements were: *A.I. 7, I.C. 9, Ext. C. 7½, P.I. 4, the pelvis being slightly small. The promontory was not felt. She was first attended during her fourth labour on the district but was admitted into hospital having been in labour for 20½ hours with obstruction due to a brow presentation. A retraction ring was present and extended nearly up to the umbilicus and the lower uterine segment was much thinned. Her general condition was good and her pulse 100. Cæsarean section was performed at once. The sutures used were chromicised and fine catgut. The child was a female weighing 9 lb. 1 oz., probably about three weeks postmature. The puerperium was febrile for one week and was complicated by bronchitis. On discharge the uterus was normal and the abdominal scar well healed. The infant was satisfactory.

Her next labour was in 1925, right occipito-anterior, spontaneous, and at term. The child was a female weighing 8 lb. 7½ oz. The first stage lasted 8 hours, the second 27 minutes, and the third 10 minutes. The puerperium was afebrile and uneventful except for slow involution of the uterus. On discharge the uterus was still slightly bulky but both mother and child were satisfactory. She is now in hospital having had a second normal delivery at term following the Cæsarean section. The presentation was a right occipito-anterior. The first stage lasted 7 hours 15 minutes, the second 20 minutes, and the third 40 minutes. The child was a stillborn male. Post-mortem examination showed a tentorial laceration. The reason for the stillbirth is difficult to find as delivery was normal in every way. Her condition during the puerperium is so far satisfactory.

CASE 5.—This patient was 22 years old. Her first pregnancy was in 1920. Her pelvic measurements were: *A.I. 8½, I.C. 9½, Ext. C. 8. She was delivered at term by Cæsarean section because of multiple granulomata of the vulva due to syphilis. The abdominal wound became septic and healed slowly. This operation was not performed at the Royal Free Hospital and there is no record of the suture material used. She attended the Royal Free Hospital for her second pregnancy in 1923. She was found to have a positive Wassermann reaction, and an ulcer on the right labium and had appropriate treatment during the antenatal period. She was allowed to go into labour and forceps were applied during the second stage for fear of rupture of the previous Cæsarean scar. The presentation was a right occipito-posterior. The first stage lasted 18¾ hours, the second 45 minutes, and the third 25 minutes. The child was a stillborn male, and post-mortem examination showed that death was probably caused by tentorial lacerations and cerebral hæmorrhage due to stress of delivery. The puerperium was febrile and complicated by an acute ulcerative condition of the left tonsil, which after various pathological investigations was thought to be syphilitic. The condition of the uterus was satisfactory on discharge.

CASE 6, that of a patient, aged 19, comes under a different category. In 1922 she had her first pregnancy terminated at 38 weeks by Cæsarean section for eclampsia. She was admitted unconscious, having had 12 fits before admission. The sutures used were chromicised and fine catgut. The child died in a few hours. The mother had no further fits after delivery and gradually improved. She was discharged with a trace of albumin and a blood pressure of 130 mm. Hg. The uterus was normal. Two years later she again became pregnant. She was admitted for observation and treatment for albuminuria on three occasions. At 33 weeks she was admitted with eclamptic fits, her blood pressure being 210. The urine was solid with albumin and she had six fits in the space of one and a half hours; these ceased after venesection. Consciousness was regained nine hours after the last fit. Induction of labour was unsuccessfully attempted by means of a Barnes bag. Four days later a stomach-tube was inserted and delivery was effected by means of forceps two days later. During the interval between induction and delivery she had severe headache and blurred vision. She was given potassium bromide, syrup of chloral, and scopolamine during labour. Two hours after delivery she had one fit and regained consciousness six hours later. The child was a male weighing 3 lb. 2 oz. and survived 14 hours. It was examined post mortem and edema of the brain was found and a slight extra epicranial hemorrhage over the right parietal bone. The puerperium was slightly febrile. There were severe retinal hæmorrhages and much exudation on examination of the fundi oculi. On discharge the patient was improving but had some albuminuria still and a blood pressure of 170. The uterus was normal.

In spite of advice the patient again became pregnant. Induction of abortion was performed when her menstrual period was 14 days overdue, and later sterilisation was carried out by means of X rays. The blood pressure was 170/140. It seems probable that in view of the recent statistics on the treatment of eclampsia that Cæsarean section should not have been performed in the ordinary course of events on this patient.

Comment.

It would be interesting if others would collect further cases such as these, and much valuable information might be gleaned from them which would prove helpful in the treatment of future cases, especially those with contracted pelves.

In the treatment of contracted pelvis there is the temptation to rely upon Cæsarean section as an easy method of delivery. A considerable number of cases would undoubtedly deliver themselves if the operation were postponed until the effects of labour had been tested. Even in some cases where the prognosis seemed hopeless for any other method of treatment than Cæsarean section, the results are excellent when the patient has been allowed to attempt spontaneous delivery. It is the practice now in the Obstetrical Unit in some cases to perform Cæsarean section after the patient has been given a trial labour in cases of disproportion and pelvic contraction. The result of this has been a marked diminution in the number of operation cases. The operation is that of the vertical incision high up in the uterus. The uterine incision is now being closed in some cases with four layers of silk sutures—one interrupted layer through the wall avoiding the decidua and peritoneum, one continuous layer between these sutures, one continuous peritoneal layer, and one fine continuous suture to bury the incision entirely. This method of suturing has proved itself so satisfactory that in some cases where a subsequent Cæsarean section operation was necessary the scar on the uterus could not be located.

I am indebted to Prof. Louise McIlroy for permission to publish these cases.

THE PATHOLOGY OF SEA-SICKNESS.

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SEA-SICKNESS, although an ancient malady, still offers scope for investigations as to its pathology and treatment. The modern traveller expects more than sympathy from his medical attendant at sea. The following suggestions have been put forward to explain the cause of sea-sickness:—

(*a*) The *labyrinthine theory*[1,2] suggests that upset in balance occasioned by the instability of the ship causes vomiting, just as does revolving in a chair on land. This theory was tested by the writer in a series of patients in two ways: (1) nystagmus was sought in a series of over 5000 patients suffering from sea-sickness, but was not found; (2) the "revolving" test was performed on a patient in port, 20 revolutions being sufficient to cause nystagmus; the same number were found necessary to cause the same condition when nausea was experienced at sea. A further observation has been recorded that in the case of three deaf mutes who happened to be travelling together, one was sick and two were not.[3] It appears, therefore, that the supporters of this theory should bring forward more evidence to support their view.

(*b*) The *neurotic theory* postulates that the symptoms are the result of auto-suggestion. It will be shown later that there is a metabolic change present, and a theory will be suggested that may explain the fact that some people are sick even whilst the ship is still in port. There are many other suggestions, such as

over-feeding, over-drinking, and constipation, which, although possibly contributory, are certainly not the main factor.

(*c*) It has been suggested that sea-sickness is an acidosis,[4] and is curable by the administration of glucose. It was to investigate this theory that the following work was undertaken; to determine whether the acidosis, if present, were the sequel to, or the main cause of, the vomiting.

The Present Investigation.

A subject for investigation was taken who was normal in every way—a male aged 30. His blood was analysed and found to have a normal content of urea, blood-sugar, chlorides, and uric acid. Hourly specimens of urine were then taken and analysed for free acid and ammonia-content. Folin's method was used throughout—i.e., titrating 10 c.cm. of urine against N/10NaOH, and retitrating after the addition of neutral formalin, using neutral red as an indicator. A three days' average was obtained, the subject being kept on a normal diet, the hours of rising, feeding, and sleeping being the same as those at sea. The pH value of the urine was obtained by the capillator method, using methyl red and bromothymol blue as indicators. Acetone was tested for by the sodium nitroprusside method (Table I.).

TABLE I.—*Showing the Normal for the Subject under Investigation.*

—	A.M.					P.M.										
	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11
Per cent. total acidity	68	40	20	14	16	18	16	16	22	36	26	20	36	40	44	72
Mg. of NH_3 (per cent.)	88·4	68	34	17	17	17	17	20·4	23·8	44·2	25	23·8	23·8	23·8	50	70
pH	4·6	5·0	4·8	5	5·2	6·6	5·2	5·2	5	5·2	5·3	5·5	5·3	5·0	5·3	4·9
Acetone	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	B.					L.						D.				

TABLE II.—*At Sea at the Commencement of a Storm. Same Methods used as in Table I.*

Per cent. total acidity	84	62	40	32	20	26	30	—	26	22	—	20	—	32	—	64
Mg. of NH_3 (per cent.)	129·2	102	85	51	30·6	34	34	—	40	68	—	27·2	—	34	—	136
pH	5·3	5·3	5·3	6	6·6	6·4	6·2	—	5·6	5·2	—	6·2	—	6·1	—	5·6
Acetone	—	—	+	—	—	—	—	—	—	+	—	—	—	—	—	+
Nausea	—	+	+	—	—	—	—	—	—	+	—	—	—	—	—	+
	B.					L.						D.				

B, breakfast; L, lunch; D, dinner.

The same methods were used whilst at sea at the commencement of a storm. The departure from port took place during the night (Table II.). As the subject for investigation had been kept on the same diet as previously, it is fair to compare the figures in Tables I. and II. During the day the results shown in Table II. were obtained, nausea was experienced as shown in the table, but no vomiting, and the usual food was taken. It will be seen that the percentage of ammonia is much higher, all day, when the ship was pitching, especially when nausea was experienced. Thus:

TABLE III.

	8 A.M.	10 A.M.	5 P.M.	11 P.M.
In port	88·4	34	44·2	70
At sea	129	85	68	136

At these times acetone was also present. It is clear that a condition of acidosis is present *before* vomiting commences. This was confirmed in other cases in which there was no opportunity of obtaining hourly specimens and of studying the cases in detail, but in which samples of urine were obtained during the pre-vomiting stage. Tables IV. and V. illustrate the results.

TABLE IV.—*Showing Acidosis before Vomiting.*

	10 A.M.	5 P.M.
Total acid (per cent.)	14	38
Mg. of NH_3 (per cent.)	17	78
pH	6·9	5·6
Acetone	—	+

Patient vomited at 5.30 P.M.

TABLE V.—*Also shows Acidosis before Vomiting.*

	10 A.M.		10 A.M.
Total acid (per cent.)	44	pH	5·4
Mg. of NH_3 (per cent.)	136	Acetone	+

Patient vomited at 10.30 A.M.

These two cases are typical of the results found on examining the urine in the pre-vomiting state. Once vomiting is established the acidosis becomes much more marked, as there is an added starvation-acidosis present. In bad cases of sea-sickness very high ammonia figures were obtained, as, for instance, in the case shown in Table VI.

TABLE VI.—*Shows Acidosis following Vomiting.*

	7 A.M.	11 A.M.
Total acidity	38	100
Mg. of NH_3 (per cent.)	173	265
pH	6·7	5·4
Acetone	+++	+++
Diacetic acid	+	++

It is difficult to say how much acidosis is due to starvation in such a case, but it is as severe as that found in diabetic coma. A patient in a condition of acidosis following sea-sickness is semi-unconscious and dyspnœic, with a very feeble pulse. It must be by a deepening of this coma that deaths from sea-sickness occur, although I was fortunately unable to investigate such a case owing to lack of opportunity.

The fact that acidosis was found in the pre-vomiting stage suggested that the blood-sugar might show alteration in this stage, and this matter was investigated. It will be appreciated that blood-sugar estimations are not easily carried out during storms at sea, but every care was exercised to obtain accurate results. Folin and Wu's colorimetric method was used throughout. Table VII. shows the blood-sugar of the same person from whom Tables I. and II. were compiled, while he was suffering from the premonitory symptoms.

TABLE VII.

—	A.M.		P.M.			
	9	11	1	4	6	8
Blood-sugar	0·09	0·11	0·15	0·07	0·065	0·
Acetone	—	—	—	+	+	-
Nausea	—	—	—	+	+	-
Total acid (per cent.)	44	22	30	24	32	6
Mg. of NH_3 (per cent.)	68	30·6	38	68	64	13
Urine sugar	—	—	—	—	—	-
	B.		L.		D.	

B, breakfast; L, lunch; D, dinner.

It will be seen that there is a preliminary hyperglycæmia followed by a hypoglycæmia, accompanied by acetonuria and increase of ammonia excretion. The hyperglycæmia is not very marked, 0·16 be

the highest that was found, except in the case of diabetics; also, sugar was not detected in any urines tested in cases of incipient sea-sickness, but a rise in blood-sugar was constantly found. Estimations of blood-sugar were also made in the case of persons in whom sickness was firmly established. In these cases the blood-sugar was found to be uniformly low, although it might be argued that this was the result of starvation.

Glucose was given in doses of 3 drachms (gr. clxxx.) to more than 1000 patients with sea-sickness, and the following results were noted. The effect observed in well-established cases was much superior to that obtained by the exhibition of other remedies such as atropine and strychnine, belladonna, chloral, bromides,[5] alkalis, and the various patent remedies. When glucose is administered to a well-established case acetone disappears from the urine, diuresis takes place, and ammonia excretion is lowered, with a corresponding increase in total acidity in the urine. Pari passu with the metabolic change there is an improvement in the general condition, and headache is abolished. The occurrence of diuresis is interesting and similar in nature to that which occurs after the other acidoses such as post-anæsthetic vomiting and cyclic vomiting.[6] The effect of giving glucose is also good in the pre-vomiting stage, and here again acetone is abolished. It is an undoubted fact, however, that glucose administered to a well-established case is much more dramatic in its effect than in the pre-vomiting stage. Table VIII. shows a severe case treated with glucose in doses of 3 drachms:—

TABLE VIII.

—			Glucose 3iii.	
	7 A.M.	11 A.M.	2 P.M.	9 A.M
Total acid (per cent.) ..	40	100	96	100
Mg. of NH_3 (per cent.) ..	176·8	265·2	212·2	136
Acetone	++	++	+	—
Vomiting..	++	++	++	—
Blood-sugar	0·074	0·08	0·10	0·09

If the vomiting is severe and glucose cannot be retained for 15 minutes (in which time a large portion is absorbed) it has been given with success both intravenously and rectally. Table IX. shows a pre-vomiting case treated with glucose. No vomiting had taken place nor did it subsequently occur.

TABLE IX.

—		Glucose 3iii.	
	10 A.M.	5 P.M.	10 P.M.
Total acidity	14·0	38	56
Mg. of NH_3 (per cent.)..	17	78·2	68
Acetone	+	+	—
Nausea	+	+	—

Comment.

Experiments show therefore: (*a*) That labyrinthine disturbances, if present, do not give rise to nystagmus or to alteration in labyrinthine tests.

(*b*) That auto-suggestion is not wholly responsible, but there is a distinct metabolic upset found in the pre-vomiting stage, as shown by (1) hyperglycæmia followed by hypoglycæmia; (2) increased ammonia excretion; and (3) the presence of acetone in the urine.

(*c*) That when vomiting is established there is a very severe acidosis, as indicated by excretion of ammonia up to 265 mg. per cent., and the presence of much acetone and diacetic acid in the urine.

(*d*) That the administration of glucose causes diuresis, abolition of acetonuria, and a fall in the ammonia excretion, resulting clinically in the relief of symptoms.

It is often found that diabetics show a much higher blood-sugar content when worried, and it has been repeatedly shown that in normal persons the blood-sugar may be raised even beyond the renal leak-point by emotional disturbance. It is reasonable to suppose that the combination of worry of departure, new surroundings, and stimuli to the sympathetic system by the motion of the boat cause an initial rise of blood-sugar. The succeeding fall is presumably due to exhaustion of glycogen reserve. One finds that if passengers can be persuaded to eat plenty of fruit and carbohydrates and to avoid fats, that they are never violently sick. The common error is to avoid food, which, of course, leads to early exhaustion of the glycogen reserve. Acidosis is the inevitable sequel. Once this train of events is in progress other factors, such as inability to take food and constant vomiting, tend to make the acidosis more severe. The administration of glucose reduces the acidosis by oxidation of the ketones and allows food to be taken normally.

It has occurred to me that it would be advisable to administer small doses of insulin with a large dose of glucose to those cases which are not cured by the administration of glucose alone, in the same way that this procedure has been adopted with success in hyperemesis of pregnancy by V. J. Harding, of Toronto. I have not tried this, hoping that others more experienced in the method will advise me as to its feasibility.

My thanks are due to the Canadian Pacific Steamships for facilitating this work, and to Prof. E. C. Dodds and Dr. A. A. Osman for their kindly interest and invaluable criticism.

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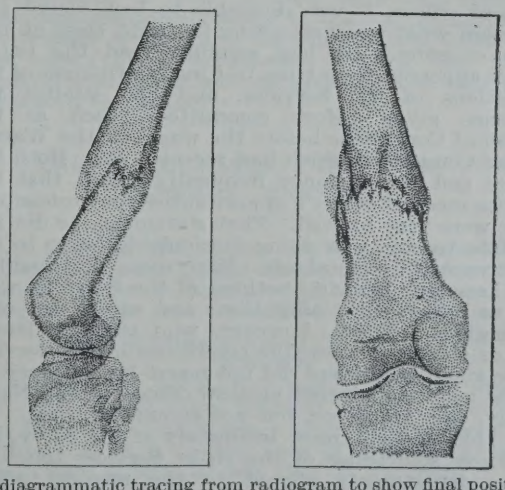
THE USE OF LISTON'S LONG SPLINT

IN THE TREATMENT OF FRACTURE OF THE FEMUR.

BY ROBERT MARTIN, L.R.C.P. EDIN.

LISTON'S long splint, which was so much used in my early days in the treatment of fracture of the femur, appears to be going out of fashion. Possibly its successors are better in themselves, but do they



Semidiagrammatic tracing from radiogram to show final position of the fragments.

give better results and more comfort to the patient? I have treated two cases of fracture of the femur with this splint—namely, a case of simple fracture of the lower third with absolutely no shortening

and perfect movement, and the case which is here illustrated.

The patient, a man of 28 years of age, was run over by a horse and cart and the "cockers" of the horse's shoe went into his leg, one over the knee-joint and the other a few inches up the thigh. The result was a compound fracture of the lower third of the femur implicating the knee-joint, and as the accident occurred in the winter time on dirty roads, and it was absolutely impossible to thoroughly cleanse and disinfect the wounds, I put the limb up, in a Liston's splint, in the usual way. On account of the septic condition of the wounds suppuration set in around the knee and the calf of the leg and I had to take it down daily for over two weeks to cleanse and dress the wounds. This was all done in a house of two rooms and a kitchen and with no trained assistance; the only help I had was from the patient's father and mother and some of the neighbours. There is absolutely no shortening, and many a time the patient has said, "No one knows that I had a broken thigh." He has followed his avocation as manager of a mill for years without any discomfort whatever.

Banbridge, Co. Down.

Corrigendum.—In the paragraph of Sir William Willcox's lecture on the treatment of pernicious anæmia dealing with the Murphy-Minot diet (THE LANCET, Oct. 8th, p. 778), the daily requirement of liver or kidneys should, of course, be 200 (not 20) grammes. The slip was corrected in part of our issue.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

WAR SECTION.

THE opening meeting of this Section took place on Oct. 10th, when Surgeon Vice-Admiral A. GASKELL delivered his presidential address on

PROFESSIONAL OPPORTUNITIES OF THE SERVICE MEDICAL OFFICER.

He explained that his purpose in choosing this subject was to deal a death-blow to the parrot-cry that there were no, or, at all events, very few and very limited opportunities in the Services for medical officers. To the uninformed it was a plausible statement, and at a time like the present, when the Services were anxious to attract the best type of medical officer, it was desirable to look round and ascertain what was preventing the right class of man from entering. He had carefully read the letters which appeared from time to time in criticism of the conditions of the Services, and had studied the evidence given before committees, such as the Durnford Committee before the war, and the Warren Fisher Committee which had recently sat. Both the letters and the evidence frequently stated that the Service medical officer's opportunities for professional work were very limited. That statement, he did not hesitate to say, was doing incalculable harm to the Services on the medical side. Many men, fully qualified and keen but knowing nothing of the Services, were apt to believe such allegations and so did not offer themselves. Those, however, who through family ties or otherwise knew the conditions of the Services to be good, joined and did not regret having done so. There were magnificent medical officers in the Navy, Army, and Air Force, but not enough of them. He was able to speak most intimately of the Navy, but he knew something of the sister Services too. All three departments offered to the medical officer magnificent opportunities, as was amply shown in the addresses dealing with the subject by the late Sir William Leishman and Group Captain Cooper. The President grouped the professional opportunities under six headings: (1) reading, (2) obtaining higher qualifications, (3) perfecting training in methods of clinical examination, (4) obtaining access to sufficient good clinical material, (5) specialist and laboratory work, (6) the compilation of wealth.

The Six Opportunities.

(1) The great difference between the life of the Service medical man and that of the doctor in civil life was that in most cases the life of the latter was a very monotonous one, the direct contrary of that of his brother in the Services. For two or three years the latter would be doing regimental work, or would be on board ship, and then would have a strenuous three years in a large hospital. The life of the ordinary general practitioner was usually too full of mechanical routine to allow of much reading, research, or the recording of his experience, whereas these things, with plenty of hard work and high-class surgery to satisfy the greatest glutton for work, were included in Services experiences. His own 34 years in the Navy could be taken as a fair sample of what the Services medical officer had in the matter of opportunities, for during that time he had had facilities for taking part in every branch of the profession—except, of course, diseases of women. In addition, the less strenuous periods afforded time for study and for getting up to date in medical and surgical knowledge. The usual run of panel doctor had no such intervals of comparative leisure.

(2) With regard to opportunities of obtaining higher qualifications, in civil life, once the young man was launched into practice, he had neither time nor means for studying for higher examinations, while in the Services men while still on full pay had granted to them periods of study-leave.

(3) He had frequently pondered the perfecting of training in methods of clinical examination. It was of the greatest importance to examine recruits for the Services very thoroughly, for if a man was fit when he entered, it was a comparatively simple matter to keep him so. This necessity trained the medical officer to conduct examinations quickly and reliably, and these should be in the hands of expert and experienced medical officers. Stress was being laid on the importance of periodic medical examinations. That was not possible on a large scale in civil life, though it might be optional in schools and institutions; but in the Services there were ample facilities for appreciating what the vigorous healthy normal was, and that was the finest groundwork for discovering disease.

(4) Some might consider that in a large Service hospital there might be a quantity of clinical material but not quality—i.e., that there was not a sufficient variety. As a fact, those hospitals contained patients of all ages, including those on the retired list, and there was a good deal of major surgery. On the subjects of venereal disease and tropical diseases the material was not only good, but was extensive, and it was doubly useful because of the facility offered for following up the cases, one of the defects which marred complete study in civilian and even ordinary hospital practice being want of this facility.

(5) With regard to specialist and laboratory work he referred to many branches of such activities and reminded the audience that while no medical officer in the Services was allowed to forget that he was first and foremost an all-round medical man special work was now paid for at an increased rate.

(6) The Services medical officer was not highly paid. Periodically, committees dealt with questions of pay and remuneration, and he was convinced that the better the type of medical officer secured for the Services the better, eventually, would be the scale of payment. Moreover, a system of deferred pay enabled the medical officer to draw a pension, perhaps a larger amount than many civilian practitioners were able to save out of their practices. It was true that it was once declared that medicine was a magnificent profession but a very poor trade, but that should not prevent anyone from joining it. Much, of course, depended on the man himself, for the keen man made his opportunities and seized them when they

occurred. He sometimes thought that those who were loudest in their criticisms of the conditions in the Services were those who were not desperately keen on their work; they were probably representative of the spoon-fed, the poseurs.

Discussion.

Sir MATTHEW FELL, R.A.M.C., said that he joined the Services two years before the South African War, and after that war a Commission considered the reorganisation of the whole system. It was due to its findings that cases were concentrated at large hospitals instead of being scattered at many places, and this greatly facilitated study, and resulted in the aggregation of valuable clinical material.

Air Vice-Marshal DAVID MUNRO said there was no need to apologise for lack of clinical or other opportunities in the Services, for in many cases they were more varied than in civil life. When that was fully realised he had no fear for the future of the Services. Some seemed to think that even if the opportunities existed, encouragement was not given to the keen man to pursue his career on his own lines. When it was understood that the policy of the Services was to encourage men to do the work they were keen on, and that advancement was obtained along professional lines, the name of the Services from the medical standpoint would be such that there would no longer be any recruiting difficulty.

Admiral Sir JOSEPH CHAMBERS said that the recent shortage of candidates in the Services was due to misapprehension as to the professional opportunities offered, and the kind of life. It simply needed that the true facts should be known, then the difficulty would have been solved.

Mr. T. B. LAYTON remarked that a very important part of the work in the Services was keeping well and fit large numbers of human beings who entered quite fit physically and mentally. There was no means of obtaining that experience in civil life, but he thought there must be in the future. His four and a half years of war service gave him a good opportunity of judging of the differences of opportunity provided by the two sets of conditions. The mental aspect was also important. Frequently a man came with symptoms, the cause for which was sought in an organic lesion in some small part of the body, and it transpired that it was due to a mental cause. In the war a regiment would show a sudden abnormal incidence of sickness, and it was sometimes traceable to the fact that the men as a whole, for some particular reason, were not happy. The Services also taught the importance of the accurate filling up of documents. In civil life carelessness in this regard often led to serious delay.

The PRESIDENT replied briefly.

MANCHESTER MEDICAL SOCIETY.

A MEETING of this Society was held on Oct. 5th, Dr. J. GRAY CLEGG, the President, in the chair.

Pituitary Tumours.

Dr. GORDON HOLMES delivered an address on Pituitary Tumours, a subject, he said, that offers interest to all branches of the medical profession, to those engaged in academic work as well as to those who meet symptoms of pituitary disease in clinical practice, since recent investigations go to show that many of the functions which have been attributed to the pituitary belong to the nervous structures in the base of the brain, especially in the hypothalamus. At present the only function that can with certainty be ascribed to the anterior lobe of the pituitary is an influence on growth, but it probably also controls the development and activity of the sexual organs. Though extracts of posterior lobe have obvious effects when administered by injection, we are still ignorant of its normal function. The clinical symptoms of pituitary disease can be, however, still most satisfactorily divided into those attributed to an over-function of the gland, or rather of its anterior lobe, and those which result from its destruction or deficient activity. The chief symptoms of hyperpituitarism are acromegaly when the disease commences after adolescence, and gigantism, with which certain features of acromegaly or of hypopituitarism are often associated when it begins before normal growth is completed.

The symptoms of hypopituitarism, Dr. Holmes said, are more common and more varied. Dwarfism, usually associated with under-development of the sexual organs and absence of the secondary sexual characters, results from destructive lesions of the gland before the age of puberty. It is usually due to extrasellar tumours and other conditions that compress the pituitary, for adenomata of the gland are rare at this age. Metaplasic adenomata developing after puberty produce Fröhlich's syndrome, or regression of sexual development and of the secondary sexual characters, disturbances in carbohydrate metabolism, and frequently somnolence and polyuria. In addition to these symptoms, which are usually regarded as a direct result of the pituitary disease, other symptoms due to the pressure of the tumour on neighbouring structures are often present. At first the intrasellar tension, and later the increase of general intracranial pressure, produce headache and occasionally vomiting, while the compression of one hemisphere or of a cerebral peduncle may give rise to a hemiplegia. More characteristic symptoms are due to compression of the visual paths, which produces more or less characteristic defects in the visual fields, the type of which depends on where the pressure acts. When the chiasma is situated posteriorly one optic nerve usually suffers first so that unilateral blindness results; this is usually followed by a temporal hemianopia in the other eye when the tumour extends back to the chiasma. When the chiasma is first involved an irregular bitemporal hemianopia is found, while the loss is mainly of the homonymous hemianopia type when the tumour compresses one optic tract. One early and frequent feature of the visual defects, which is often forgotten, is the occurrence of scotomata, either central, when the optic nerve is compressed, or more commonly paracentral in the temporal fields. The ocular nerves are frequently involved too, causing squint and diplopia.

At present, said the speaker, the most reliable treatment of pituitary tumours is operation, which has become a moderately safe procedure in skilled hands, but good results have been obtained by radiological treatment, and it seems that further development of this method may be expected. Glandular treatment, either to control the growth of the tumour or to relieve the symptoms of deficiency, has rarely given satisfactory results, but recent experimental investigations give promise of greater success in the future.

JAMES MACKENZIE INSTITUTE FOR CLINICAL RESEARCH.

ON Oct. 4th the winter course of lectures at the James Mackenzie Clinical Institute, St. Andrews, was opened by Dr. A. MAITLAND RAMSAY, the honorary director, with an introductory address on the

Ocular Manifestations of Gastro-intestinal Disorder.

It was pointed out that in gastro-intestinal diseases the causal relationship between the general disorder and the ocular symptoms is not nearly so direct and intimate as it is in the case of cerebral, renal, or circulatory affections, but that in an indirect way, through the agency of micro-organisms and of bacterial or biochemical toxins, gastro-intestinal disturbance plays an important part in causing or in aggravating diseases of the eye. Attention was drawn to the reflex disturbances in the eye caused by dental caries or septic tonsils, which were also mentioned

as the cause of acute or of chronic inflammation of the eyeball. That was illustrated by a brief description of toxic or recurrent iritis. A careful distinction was drawn between chronic intestinal auto-infection and chronic intestinal auto-intoxication, and in this connexion reference was made to the work of Desgeorges. Disordered metabolism was regarded as the underlying cause not only of inflammation of the uveal tract, but also of acute glaucoma and of toxic amblyopia, and the influence of persistent constipation on the occurrence of intra-ocular hæmorrhage in young adults was fully discussed. The attention of the general practitioner was directed to the possibility of atrophy of the optic nerve following severe hæmatemesis. The retinal ischæmia was regarded as a favourable condition for the action of a toxin or other infective agent, whose existence may be assumed although it does not admit of strict scientific proof. The lecture concluded with a description of a group of eczematous affections of the eye associated with disordered carbohydrate metabolism, and it was said that in the treatment of these conditions it was necessary to pay special attention to the diet, and also to take means to promote free elimination of the metabolic toxins which have accumulated in the blood.

In the ensuing discussion Dr. W. C. SOUTER gave a short summary from personal experience of the varied gastro-intestinal disorders, functional, organic, and toxic, in which eye phenomena may be met, special emphasis being laid on the help obtainable from an examination of the eyes in cases of unsuspected luetic affections.

BRIGHTON AND SUSSEX MEDICO-CHIRURGICAL SOCIETY.

AT a meeting of this Society held on Oct. 6th Dr. DONALD HALL gave the presidential address entitled

Some Help Obtained from Electrocardiography

based on the examination in private practice of 419 patients during a period of three and a half years. The word "help," he said, was used advisedly, for this method of examination was of use not in supplanting but in supplementing ordinary clinical methods, often giving useful information which otherwise was lacking. All the information regarding disorders of rhythm was given equally well or better by the electrocardiogram than by the polygraph, and on the myocardium the polygraph was silent. In graphic methods the electrocardiogram had superseded the polygraph in all pathological conditions except pulsus alternans, in which the sphygmograph was the more reliable, although he had obtained records with both instruments.

Dr. Hall quoted a case of a woman of 26 who had assumed an invalid's life as a result of a diagnosis of "heart strain." Finding the cardiac signs and borders normal her present medical attendant had sent her for electrocardiographic examination with a view to deciding the nature of her arrhythmia, which was noticeable to the patient herself. It proved to be a striking example of sinus irregularity; the original diagnosis had been mistaken, and the patient's illness had been the result of suggestion. All her symptoms had now disappeared and she was leading an ordinary active life. Sinus irregularity was the only form of cardiac irregularity which was purely physiological. While premature beats were in many cases of but minor importance, each case had to be considered on its merits. In general terms auricular and junctional premature beats were more often due to extrinsic causes, and in many instances the patient was unaware of their presence, whilst ventricular premature beats were intrinsic in origin and the patient was usually cognisant of them. At times multiple premature ventricular beats might be the main cause of the patient's subjective symptoms, particularly of giddiness and faintness, these symptoms disappearing on restoration of the normal rhythm. Simultaneous photographs of electrocardiogram and pulse tracing demonstrated that although the premature beats gave large complexes in the electrocardiogram they were dynamically but feeble contractions; thus whilst "extrasystole" was a misnomer, the term "dropped beat" was often correct so far as the pulse at the wrist was concerned.

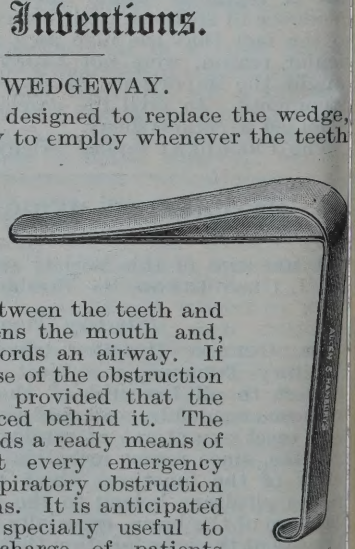
There were many cases, said Dr. Hall, in which alteration in the ventricular complexes had given really important information, sometimes when clinical evidence was but scanty or absent. Within the last few days, for instance, he had seen a man of 65 who, without any premonitory symptoms, had become unconscious while playing cricket with his grandson. A careful clinical examination had revealed no cardiac, vascular, renal, or aural disease, but an electrocardiogram had shown right-bundle-branch block. He had met 16 instances of this condition in his series, the lesion affecting the left division in three and the right in 13 cases. In his 419 cases there had been 35 patients in whom the T-wave was negative in lead I. or lead II. or in both these leads. Three were untraced and of the remainder 16 were alive and 16 dead. This T-negativity he had found relatively frequent in cases of angina pectoris, and examination by the electrocardiograph had proved useful in strengthening the medical attendant's hand in the treatment of refractory patients.

Very puzzling, said Dr. Hall, were the cases in which patients complained of such symptoms as pain, faintness, palpitation, and shortness of breath, yet on examination yielded few or no physical signs. If such a patient was a young woman without mitral stenosis it was safe to assume that her chest pain—which typically was submammary and not retrosternal—was not of cardiac origin. Far more difficult were the same symptoms in middle-aged people, and particularly in middle-aged men. It was often hard to find firm ground for insisting that such patients should limit their activities at a time of life when they were at their business or professional zenith, and their responsibilities were greatest. In such cases help was often obtained from examination of blood pressure and urine, but in a residue he had found that information could be obtained from an electrocardiogram and by no other means.

New Inventions.

THE WEDGEWAY.

THIS instrument is designed to replace the wedge, which it is customary to employ whenever the teeth of an unconscious patient are tightly clenched and respiration is obstructed. It consists of a tongue depressor having a double deck. The thin end is passed between the teeth and when pushed on opens the mouth and, at the same time, affords an airway. If the tongue is the cause of the obstruction it can be depressed, provided that the wedgeway is introduced behind it. The instrument thus affords a ready means of dealing with almost every emergency which arises from respiratory obstruction in unconscious persons. It is anticipated that it will prove specially useful to nurses, who have charge of patients during recovery from anæsthesia, and it has the further advantage that it is inexpensive and cannot get out of order.



The Wedgeway is sold by Messrs Allen and Hanburys, Ltd., 48, Wigmore-street, W.

A. LOWNDES YATES, M.D. Lond.,
F.R.C.S. Edin.

Reviews and Notices of Books.

THE HEALTH OF THE NATION.

By F. E. FREMANTLE, M.P., M.B., M.Ch., F.R.C.P., F.R.C.S., D.P.H., Consulting County Medical Officer of Health for Hertfordshire; Lieut.-Colonel, R.A.M.C. (T.A.) retd. With a Foreword by the Rt. Hon. NEVILLE CHAMBERLAIN, M.P., Minister of Health. London: Philip Allan and Co., Ltd. 1927. Pp. 209. 8s. 6d.

THE object of this book is explained, though not from exactly similar standpoints, both in an introductory note by the author and a foreword from Mr. Neville Chamberlain, the Minister of Health. That object is to bring together the main factors concerned in the preservation of the health of the people, as they are represented by the central work of the Ministry of Health, and by the various professional, municipal, and local activities which carry on their duties either in direct association with the Ministry or along lines which bring them under the ægis of the Ministry. The administration of public health presents many problems in which the public is acutely interested, but without understanding what are the steps that have been taken by the law of the land to meet the situations; while when the public is aware of the details of administration too often it is ignorant both of the grounds which prompt medical action and of the part which that action plays in the general pattern of what may be termed the statecraft of public health. As the Minister of Health says in the foreword, the history of public health organisation in this country has had strange and varied origins to account for its growth, and that growth, in waxing, has incorporated aspects of human life which had been considered formerly to lie outside its scope. Hence the complicated design of the machinery devised to maintain the health of the nation; hence the difficulty of perceiving how development has taken place and Colonel Fremantle's book is designed to make matters clear.

The plan of the work is simple, as is fitting in a guide-book. The history of public health organisation is outlined in such a way that the complications of administration can be seen to bear relation to the various origins of legislation. We are invited first to consider the size of the population affected, and the main figures of the last census, that of 1921, are employed from which to draw deductions. The deduction which is most pertinent to the sequels is the author's opinion that there is no case for those who would defend the declining birth-rate of this country on the ground of over-population. A chapter on the records of birth, sickness, and death in the country as illustrated by the figures of registration and notification is placed in juxta-position with the census figures, and on the whole makes cheerful reading in its evidence of medical and sanitary progress. In speaking of the National Insurance Acts, of which the author is obviously critical, what is termed the economics of health are introduced to our notice when discussing the amount paid out in sickness and disablement benefit as a useful index to the gross amount of sickness in 13,000,000 insured persons, constituting one-third of the population. These figures, which in general do not include the first three days of illness (for which benefit is not payable), show a total loss in 1925 of 25,000,000 weeks' work, or the equivalent of nearly half a million persons' work throughout the year. This great fraction of the population is made up of individuals all belonging to the industrial classes, and in discussing the economics of health Colonel Fremantle draws up a profit and loss statement of a striking nature in order to show that the improvement of the public health is not only an act of social philanthropy, but also a sound instrument of economic development and insurance against economic loss. This profit and loss statement shows, says the author, "on the debtor side the five items: (1) to loss on patients' work; (2) to lesser efficiency of those at work; (3) to cost of care and treatment; (4) to indirect loss in industry from epidemics; (5) to cost of maintenance of public health services. On the creditor side it would show the profits: (1) by lives saved; (2) by longer life." By rough but fair estimates Colonel Fremantle then deduces the following as the main heads, of the achieved profit from improved health, of the actual cost of public services for maintenance of health, and of the apparent loss from present-day sickness and disablement:—

Annual Profit.

	£
1. By lives saved	77,212,000
2. By longer life	200,000,000
Total	£277,212,000

Annual Loss.

	£
1. To loss on patients' work	80,000,000
2. To lesser efficiency of others	80,000,000
3. (*a*) To care and treatment in institutions	50,000,000
(*b*) To care and treatment at home	24,000,000
4. To loss of work on those in attendance on the sick	10,000,000
5. (*a*) To public health services	43,900,000
(*b*) To school health services	3,200,000
Total	£291,100,000

To the debit side there must still be added the cost of indirect losses from disturbance of industry, so that the annual loss, on these calculations, would amount to £300,000,000. He quotes Prof. Fisher, of Yale, in support of the view, which seems widely held, that one-third of the loss is preventable, and he respectfully commends the conclusions to the consideration of the Treasury, with a qualifying remark which indicates the side of the House of Commons on which he sits.

With the ground thus cleared Colonel Fremantle discusses the duties and responsibilities of health authorities and their officers, the provisions laid down for the securing of pure water and food—especially milk—and adequate light and air for the community; the procedures adopted by public bodies, the medical profession, and private organisations for the abatement of infant mortality; the benefits obtained under school inspection, hospital administration, insurance, and old age pensions. Chapters follow upon the influence of infectious fevers upon the community; upon the efforts to combat "the four scourges," tubercle, cancer, alcoholism, and venereal disease; upon the circumstances in which the victims of mental disease are treated; and upon the provision made for the safety and succour of industrial workers—in which last section we are glad to see a valuable note on the health of the mercantile marine. This category shows that the author has been truly inclusive in the matters which he desires to make clear to the public, and throughout his information is given in a manner that should be of great and practical assistance to the various authorities entrusted with the care of the health of the nation.

DISEASES OF THE HEART.

Their Diagnosis, Prognosis, and Treatment by Modern Methods. Second edition. By FREDERICK W. PRICE, M.D., F.R.S. Edin., Physician to the National Hospital for Diseases of the Heart; Consulting Physician to the Royal Northern Hospital, London. London: Humphrey Milford, Oxford University Press. 1927. Pp. 584. 21s.

Dr. Price's book was welcomed by the practitioner when it first appeared nearly ten years ago as something that was lacking in medical literature—namely, a reasonably complete account of the diagnosis, prognosis, and treatment of heart diseases in the light of recent physiological research and with due regard to the clinical observation of the past. An amazing amount of material was condensed within

the 472 pages, the essential points needed by the practitioner being presented with clearness and literary exactness. The second edition of the book retains the same general form as its predecessor with the addition of some 100 pages of new matter, including chapters on syphilitic heart disease—Dr. Price regards syphilis as the cause of a large proportion of all cases of aortic incompetence—the X ray examination of the heart and aorta, and (in collaboration with Dr. J. Blomfield) anæsthesia in relation to heart affections. It seems that in this country at all events radiologists are but rarely asked to examine heart cases; the author has for some years made it a practice to watch the progress of such cases on the screen and is here recording his own experience. Reference is made to the more recent work on the pathology of auricular fibrillation and quinidine therapy, the possibility of surgical treatment in angina and mitral stenosis, and some of the rarer forms of heart-block. In the older section of the book will be found a classification of cardiac cases for the purpose of prognosis which is eminently practical, and the description of polygraphic records is both lucid and concise.

Condensation has been carried far; the reader will find it difficult to follow a sentence of 14 lines in which the various causes of high blood pressure are enumerated, and will be tempted to wonder if it would not have been simpler to give a complete list of the conditions which are in no way associated with hypertension. Again, the student who has learned the meaning of "normal variation" in the physiological laboratory will hardly accept an unqualified assertion that the arterial blood pressure varies from 170 to 200 mm. in cases of simple hyperpiesis, and from 160 to 220 mm. in secondary contracted kidney. The statement that "the indications of failure of the left auricle are pulmonary in character, while the indications of failure of the right side of the heart are those of tricuspid incompetence" is not in keeping with the up-to-date character of the rest of the book and carries the reader back to the days when all the symptoms of congestive heart failure were attributed to back pressure. It should be borne in mind, however, that the book is a synopsis rather than a critical review of cardiology. On many subjects cardiologists are bound to differ, and a text-book intended to satisfy the needs of students or practitioners must inevitably be dogmatic in tone. Limitations of space make it impossible for the author to quote the evidence on which many conclusions are based, and the student has to rely to a great extent on the author's judgment. In most respects he conforms to orthodox teaching and at times expresses no opinion, leaving the student to form his own.

It is perhaps the inevitable defect of a book of this kind that it should lack clear personality. A supplementary volume containing clinical records of cases would give life to the dry bones of systematic teaching. In one respect we think the arrangement of material might be improved. The chapter on electrocardiography, which now occupies 47 pages, is isolated at the end of the book. A better sense of proportion would be gained by its incorporation in the sections dealing with the various disorders in which it is of clinical value. The production of the book is faultless.

RENAL DISEASE IN CHILDREN.

Clinique Médicale des Enfants: Affections de l'Appareil Urinaire. By Prof. P. NOBÉCOURT. Paris: Masson et Cie. 1927. Pp. 345. Fr.40.

THIS unit of Prof. Nobécourt's well-known series is arranged on the same lines as the earlier volumes which have received notice in our columns from time to time. Each chapter consists of a detailed account of the clinical and biochemical features of an individual patient, followed by a discussion of the disorder that the case exemplifies. From the application of this method to conditions such as nephritis it follows that the author's classification is, in the main, a clinical and biochemical one; comparatively little emphasis is placed on the relative involvement of tubules and glomeruli, while attention is focused on the varying predominance of azotæmia, hypertension, and hydræmia with retention of chlorides. Eclamptic symptoms—the author is in agreement with K. D. Blackfan and others who avoid the word "uræmic"—are attributed almost entirely to hypertension and consequent physical factors. Stress is laid on the comparatively slight and transient effects of azotæmia per se in the nephritis of children compared with adults, though the frequent association of a moderate degree of azotæmia with chloride retention is recognised. The same method is applied to a number of other questions pertaining to renal disease, among them being the relation of non-scarlatinal streptococcal infections of the throat, and of purpura, to nephritis. This volume is as attractive and as full of interest as its predecessors, and provides a lucid presentation of modern views on this branch of children's disease.

PLASTIC SURGERY OF THE HEAD, FACE AND NECK.

By H. LYONS HUNT, M.D., L.R.C.S. Edin. Philadelphia and New York: Lea and Febiger. Pp. 1065. $7.00.

FACIAL surgery has in recent years reached a very high stage of technical development as a result of the need for repairing war injuries. This volume attempts to review the whole subject, and includes a discussion of special methods of anæsthesia and all the numerous devices for transferring skin to the face. The methods described are for the most part well-recognised procedures, but we cannot always agree with the author's judgment in the selections he has made. For example, the only methods described in detail for the treatment of cleft palate are those of Lane and Brophy which, in this country at least, have been entirely abandoned in favour of the simpler operations of Langenbeck and Berry. The book contains many indications of the country of its origin, from the use of "turtle bile" in the treatment of keloids to the final suggestion that the ordinary hospital will have £20,000 worth of radium at its disposal. The book is well produced and fully illustrated, most of the illustrations being borrowed from familiar sources. Dr. Hunt has gathered together a large amount of information, and his book will be useful to those engaged in this special class of work.

INTERNAL MEDICINE.

Lehrbuch der Speziellen Pathologie und Therapie der Inneren Krankheiten. Twenty-fifth edition. By Prof. Dr. ADOLPH STRÜMPELL. Revised and edited by Prof. Dr. C. SEYFARTH. Leipzig: F. C. W. Vogel. Vol. II. Pp. 985.

THE second volume of this popular work on internal medicine deals with disorders of metabolism, diseases of the kidney and urinary apparatus, locomotory organs, blood, internal secreting glands, complete nervous system, including diseases of the membranes of the brain and functional neuroses, such as epilepsy, hysteria, and neurasthenia. Each disease is described under ætiology, pathological anatomy, clinical symptoms, prognosis, diagnosis, and, finally, therapy. Two-thirds of the book is devoted to diseases of the nervous system, and a comprehensive survey is given, with special reference to the pathology of the various conditions. The chapter on hysteria is very complete, with an excellent description of the symptoms and treatment. The book, which is adequately illustrated, is of great value, being authoritative without being unwieldly. No work can attain a twenty-fifth edition without outstanding merits, and the present edition, which has been re-edited, will further enhance the reputation of this text-book.

THE LANCET.

LONDON: SATURDAY, OCTOBER 15, 1927.

SCHOOLS AND INFECTION.

SCHOOL life raises many perplexing problems, not the least of these being the growing recognition of the elementary school as a public health unit as well as an educational unit. How to avoid infection in the schools, and enable the education authority quietly to pursue its way unhindered by epidemic disease, would not be so difficult to determine if the needful premisses were known. Unfortunately, in the case of the common infectious diseases particularly, the natural history of the parasite in the host and of the host invaded by the parasite vary widely with different infecting organisms and with the same infecting organisms at different times. Hence it is probably true that no one can yet tell in advance how a hygienic measure is likely to affect school life, and the school medical service has adopted the limited but valuable rôle of behaviourist, simply drawing deductions from observations now prolonged over a period of years. The latest Memorandum on Closure of and Exclusion from School, issued jointly by the Ministry of Health and the Board of Education is based on actual experiences when exclusion has been tried as a means of suppressing epidemic disease. Observation has, however, been complicated by the fact that until quite recently public health has not been the sole motive in exclusion. Finance has come in, for, when the attendances have sunk owing to individual exclusion to a certain level, it has paid the school managers to close the school. In this respect there has been a sharp clash between the interests of the sanitarian and of the educationist. This has now been rectified and, under the new Code (§ 15 of Administrative Memorandum No. 51, 1927, Code of Regulations for Public Elementary Schools, 1925) the school managers are allowed to omit in calculating average attendance, on which the grant depends, any week which falls below 60 per cent. of the register, when the school medical officer attributes the fall to the prevalence of epidemic illness.

Opposition to school closure may be based on both educational and medical grounds. Whilst the interference with instruction is obvious to everyone, it is less often realised that the closing of a school also makes it harder for the public health authority to control infection among the pupils. No longer under the watchful eye of school medical officer or nurse, their symptoms are apt to pass unrecognised, and an epidemic is the less easily kept in check. The Memorandum lays down as a general principle that, if the power to exclude individual children be used to the best advantage, it is only in special and quite exceptional cases that it will be necessary to close a school in the interests of public health. The exception is well recognised in the case of thinly populated districts where children come far from isolated homes, and school closure may have definite value in preventing the spread of measles from village to village and in avoiding exposure for children already in the early stages of the disease. In the case of diphtheria the Memorandum is satisfied that the diligent exclusion of contacts, in many cases for a long period, should obviate the need of school closure for this infection. Scarlet fever is a disease which spreads slowly from child to child, and here again diligent search for slight cases and supervision of contacts should render school closure very rarely necessary. Closure when desirable need not extend to the whole school and may on suitable occasions be limited to particular classes; but when complete there must be no loophole for the children to meet, and the doors of playgrounds must be shut and the managers of Sunday schools induced to collaborate. Giving the gist of the matter in a sentence, the Memorandum remarks that closure of a school is not justified unless three conditions are simultaneously present: (1) evidence pointing to the continued meeting of children in school as a source of infection; (2) cases of infectious disease continuing to occur after every effort has been made to discover the infecting cause; and (3) good reason to expect that closure will considerably reduce the likelihood of exposure to infection.

The Memorandum deals solely with public elementary schools, although the lessons may have a wider application. The problem of the residential school is of course a separate one, but there is one matter of very keen interest to resident school managers, parents, and school-children alike in which the principles are closely similar. This is the attendance during the holidays of school-children at public gatherings of all kinds. On account of the prevalence of serious illness last Christmas the management of a large boarding-school circularised the parents of the scholars asking them to keep their children away from crowds during the holidays and not to take them to any place of public entertainment during the last fortnight before returning to school. Such a request if loyally observed would inflict great hardship on those children who comply, for their health would be at the mercy of less compliant school-fellows and parents. Moreover, it is doubtful whether the policy implied is of real value. In his presidential address [1] to the Medical Officers of Schools Association in 1926 Dr. A. I. SIMEY said: "I sometimes wonder what would be the result of entirely abolishing our code of holiday quarantine precautions and allowing the infection to enter schools more frequently, but in smaller outbreaks, spreading the incidence, so to speak, over a number of terms instead of crowding an unmanageable number of cases into a few terms at long intervals." The best place for children to get over an infection is, he points out, the home, or failing that the relatively small preparatory school. It is unreasonable, we feel, to ask parents to keep their children away from assemblages of people during the Christmas holidays; it would be bad for the parents and unfair to the children. Only under conditions of grave danger would such prohibition be justifiable, and then the instruction should emanate from some central authority. On the other hand, it would be quite reasonable to ask parents not to take their children to assemblages, whether parties, theatres, or cinemas, for a clear week before term-time. If to this direction the boarding-schools added the practice of taking each pupil's temperature at night for the first clear week of the term the danger of infection spreading would be materially lessened. We are raising this question at the beginning rather than at the end of the Michaelmas term in order to give school medical officers the opportunity of issuing some sort of concerted advice with regard to the Christmas holiday population; it would be well if some uniform system were tested and its results noted.

[1] THE LANCET, 1926, ii., 1057.

THE TEACHING OF SURGICAL ANATOMY.

As advance in medicine takes place we see new and intricate methods of diagnosis devised, the chemical changes underlying many diseases revealed, the resources of physical science called upon for treatment, the horizon of bacteriological and immunological science ever enlarging. No perfunctory method of study will now serve to equip the medical student for his future work in life. He must go through a strenuous, exacting, and prolonged course. The curriculum becomes more and more crowded as the specialists in the different branches of medicine claim to have each his own subject embodied in it. This process of inclusion must inevitably reach a limit beyond which it is inadvisable to go, for it is necessary to train practitioners who, as the subdivision of medical knowledge proceeds, preserve a broad outlook, free from all trace of those obsessions which beset the enthusiastic worker in a limited field. Indeed, it is questionable whether it would not be in the interests of the public and their doctors if some curtailment of the medical curriculum were not to be enforced even now. This applies almost as much to the basic sciences of anatomy and physiology as to the more recent growths of biochemistry and radiography. Anatomical knowledge is indeed necessary for diagnosis and for the surgical operator, but it may well be asked by the reader of such a book as that by Prof. DEAVER [1] on "Surgical Anatomy of the Human Body" whether already too much is expected of the student. Here is a treatise on anatomy written by a surgeon with the surgeon's needs in view. It is beautifully illustrated; the pictures are realistic in the impressions they give. Everything the surgeon could conceivably desire to know, every relation which could possibly be of importance to him is described and figured. It is an exhaustive treatise on surgical anatomy, it is wellnigh perfect of its kind—but it is a book of 2168 pages in three large volumes. Should a student during the clinical years be expected to read such a large volume? Should it be necessary, after two years' study in the dissection room, for him to read it? Now that the teaching of anatomy in the earlier years is in the hands of specialists it is essential for instruction in so-called surgical anatomy to be continued later, for until the student has some clinical knowledge he cannot get a grasp of surgical problems. But when it comes to arranging the scope of such a course, difficulties arise. For the future surgeon an accurate and deep knowledge of anatomy is essential. Most inaccessible structures are apt suddenly to assume surgical importance as the understanding of disease becomes more exact. The development of pituitary surgery, the introduction of splanchnic anæsthesia, illustrate how the most abstruse anatomical relations enter into practical everyday operating. But for the future general practitioner too extensive a course of surgical anatomy may deprive him of clinical opportunities which will not recur. It might be a wise policy for instruction in surgical anatomy to be restricted so as to comprise only that which is helpful in the diagnosis of disease or necessary for the performance of the common operations and especially those urgent procedures which every doctor may be called upon to carry out. Those on whom it falls to devise medical curricula should insist upon the instillation of principles, upon broad generalisations, and a wide outlook. Detailed information can always be obtained from books; for this purpose the only essential is for the worker to know of the existence of such knowledge and where it can be obtained. If the newly qualified practitioner has absorbed the basic principles of his art, if advanced demonstrations have opened up for him a vista of the refinements of science without clogging his perception with needless detail, if, in fact, he approaches his work with the right mental attitude and equipment, defects in special knowledge will not handicap him in his dealings with his patients. They can be remedied easily by reference to trustworthy sources of information.

[1] Surgical Anatomy of the Human Body. Second edition. By John B. Deaver, M.D., Sc.D., LL.D., F.A.C.S., Surgeon in Chief to the Lakenau Hospital, Philadelphia; Emeritus John Red Barton, Professor of Surgery, University of Pennsylvania. London: William Heinemann. 1927. Vol. i., pp. 551; vol. ii., pp. 854; vol. iii., pp. 763. 8 guineas the set.

A CRITIC OF THE JURY SYSTEM.

AT the latest of the provincial meetings of the Law Society, held at Sheffield recently, a member read a paper on The Jury System: Its Cause and Cure, in which he criticised as unsuitable and unsatisfactory the present system under which it is left to juries to assess damages upon allegations of negligence in the certification of lunatics. The critic proposed to substitute trial of such cases in camera before a special tribunal consisting of a medical practitioner, a solicitor, two trained professional jurymen, and (as chairman) a barrister or judge. Evidently some of the recent decisions of juries at the expense of certifying doctors have awakened surprise and misgiving outside the ranks of the medical profession.

The trained professional jurymen whom the speaker at Sheffield had in mind were to be a new type. They were to be persons who had had 15 years' experience in some trade or business (not being a profession) on their own account, or as directors of a public trading company for a like period. They should have retired from business, attended a special course at a school of law, and passed a qualifying examination in knowledge of the rules of evidence. They should have a salary of £1000 a year, and should attend as required at one court or another, thus adding constantly to their intellectual and judicial stature till they became supremely competent assistants to a presiding judge. Five of these trained and salaried jurors should go to each ordinary jury and they were to be available, it seems, not merely in the High Court, but in the county court and at coroners' inquests as well. Juries, the speaker explained, had developed from remote origins to their present character and functions by a series of adaptations. His present proposal would merely adapt the system afresh so as to get the best value from it and so as to ensure to litigants the fullest and most careful consideration of their cases. Other speakers who followed were not so sanguine. Many feel that a juror should be paid his reasonable expenses, but they deprecate the institution of a class of professional jurymen who would contract fixed ideas and acquire an official point of view while losing the common sense outlook which is so valuable a corrective in the administration of justice.

The defects of the existing jury system are many. Jurors have no individual responsibility; they give no reasons for their verdict; their verdict as such is not subject to appeal. Many men who are summoned to serve on a jury are so deeply concerned over the enforced neglect of their business that they cannot give proper attention to their high judicial functions. Nor were these the only criticisms of the jury system uttered at Sheffield. It was said that jurors tend to reflect the popular prejudices of the

day, particularly in periods of political excitement, that they are liable to bias, and that they are always more likely to decide in favour of a well-dressed pretty woman than in favour of a railway company or a municipal corporation. Finally, it was complained that our jurors are utterly untrained, and yet have to decide intricate questions of disputed fact, while endeavouring to reconcile their individual conclusions with the prescribed unanimity. Nobody can deny the existence of these disadvantages, yet so competent an observer as the Lord Chief Justice has stated that there is nothing to be gained by abandoning the present haphazard method of selecting jurymen and by substituting panels of specialists. Lord Birkenhead shares Lord Hewart's view; out of all the thousands of cases in which he was engaged at the Bar he can recall only three in which a jury came to a wrong conclusion. Judges are happily contented with the instrument with which they are accustomed to work; the general public is comfortably reassured by the infusion of a lay element into the administration of justice. But there is neither contentment nor reassurance for the medical profession when immense damages are wildly awarded against practitioners who are discharging a public duty under the Lunacy Act with an illusory statutory protection—this is a position which demands reform.

Annotations.

"Ne quid nimis."

A WEST-COUNTRY ANTI-RHEUMATISM CAMPAIGN.

A MEETING held on Oct. 1st at the Bristol General Hospital inaugurated a campaign which, as our readers are aware, has been in preparation for some time. The meeting was attended by the officers of the school medical services of Bristol, Gloucestershire, Somerset, and Wiltshire, including those of county boroughs within their borders, and by a group of consulting physicians practising within the same area. The purposes of the organisation which this meeting brings into living activity are, first, research into the conditions under which children contract rheumatic heart disease; and, secondly, assistance in the treatment of such children. Practitioners within the area have been invited to send brief notes of cases arising among their patients. For this purpose the disease has been defined as follows:—

(1) Heart disease arising in connexion with rheumatism, chorea, or scarlet fever in a child between the ages of 5 and 14 inclusive.

(2) Heart disease which, though not arising in connexion with rheumatism or chorea, is nevertheless rheumatic in type—i.e., ventricular enlargement with mitral incompetence, with or without aortic incompetence or acute pericarditis—arising in a child between the ages of 5 and 14 inclusive.

It is probable that a considerable percentage of the cases that fall within the second part of this definition will be brought to light by the work of the school doctors. Further, there is little doubt that close attention to the problem of diagnosis of the disease in its early stage will be of immediate value to the school medical service. This at all events has been the experience in Bristol, where the plan about to be described has been on trial for several years past. It has been found that reference of children with signs suggestive of cardiac rheumatism to hospital physicians interested in the matter has resulted in the removal of restrictions with regard to school attendance, games, drill, and the like in a large number of instances, and in others has been the means of directing children in the early and more tractable phases of the disease into channels of treatment that might otherwise have been missed. On the strength of these arguments and experiences the local authorities in the areas named have decided to make arrangements by which children, in whose cases the school medical officers think it desirable, may be seen at convenient places by physicians with special experience in this disease.

This plan has the support of the Board of Education. The area comprised within the three counties named is fortunate not only in having at its centre a city in which work of the kind has already been done, but also in possessing medical officers in all the areas who have already had administrative experience of similar organisations. Moreover, they have undertaken to conduct inquiries into the conditions under which the children are living at the time of onset of the disease; and since this district includes a wide range of variations in soil, altitude, density of population, and so on, information of value should be forthcoming. The investigation, which was initiated by the Cardiac Subcommittee of the Science Committee of the British Medical Association, has for its focus the University of Bristol Centre of Cardiac Research. This is housed at the Bristol General Hospital, equipped by the University of Bristol, and maintained by several grants. Among these may be mentioned one from the Medical Research Council for clerical expenses; also a Research Fellowship provided for two years by the Colston Research Society, a Bristol organisation. To complete this machinery which is in process of being set up, it is hoped to devote a number of beds in the country hospital shortly to be built at Winford, near Bristol, to the treatment of cardiac rheumatism in childhood. The site has been carefully chosen, and is believed to be the best within a convenient distance from the city.

HYGIENE IN AMERICAN COLLEGES.

AMERICA has no equivalent of the English public schools, but in many ways the smaller colleges are more reminiscent of public school traditions than any other part of the American educational system, witness the "hazing," which term includes "fagging" of freshmen by sophomores and the intense "college spirit" in athletics among the less creditable resemblances. It would appear that inadequate medical supervision is another if a recent report to the Presidents' Committee of Fifty [1] is to be taken with due solemnity. Dr. Storey's conclusion is that "the evidence assembled in this report brings out the fact that the great majority of the institutions . . . . are not furnishing opportunities for a competent general education in hygiene to the young men and young women . . . . Few leaders are equipped with a knowledge of scientific hygiene, and very few are trained for leadership in hygiene." The theological schools appear to be the worst sinners, for out of 101 reporting only 15 give a general medical examination to their students. On the other hand, such an examination is given in 118 of 142 colleges and universities. It is true that the examination is not always as thorough as it should be, but a beginning has certainly been made. In some colleges standards are being set that it may be hoped will gradually raise the level. A powerful factor to this end is the American Student Health Association, a growing and increasingly influential body with national and regional organisation that claims adherents from most, if not all, the colleges and universities that have progressive departments of student health. A valuable report on the present status and future possibilities of this work was published a year ago by the then secretary of this Association, Dr. Warren E. Forsythe,[2] with a bibliography of 268 references to published articles which shows to what an extent the subject has been already discussed in America. Nevertheless, we are disposed to agree with Dr. Storey that without properly trained leaders the progress of the movement must be slow and, we might add, erratic.

[1] The Status of Hygiene Programmes in Institutions of Higher Education in the United States. By Thomas A. Storey, M.D., Ph.D., Director-Professor of Hygiene in Stanford University. Stanford University Press. 1927. Pp. 125. Paper $1.00, cloth $1.50.

[2] Health Service in American Colleges and Universities, University of Michigan Bulletin New Series, vol. xxviii., No. 11, Sept. 11th, 1926.

HODGKIN'S LYMPHOGRANULOMA.

A HUNDRED years ago Bright and Hodgkin began to doubt the "cancerous nature" of the nodules in a certain type of spleen, and we learn that Bright gave great credit to his colleague for assigning to this disease a separate place in the museum at Guy's. Thirty years later the discovery was wrongly attributed to Wilks, but he, "with the generous desire to perpetuate the name of his predecessor," insisted that this entity be known as Hodgkin's disease. In the intervening years pathologists, including Sternberg, Reed, Andrewes, and Turnbull, have taught that the condition bears the anatomical and histological hall-marks of a granulomatous inflammation. According to their view the "infiltration" of vertebræ, spinal dura mater, and spinal nerve-roots mentioned elsewhere in this issue of THE LANCET is essentially an inflammatory lymphogranulomatous infiltration. Lymphadenoid tissue anywhere in the body may be picked out by this process so that glands, spleen, liver, kidney, and bones are commonly affected; and the infiltration may spread to adjacent organs, for example, the mediastinum and lungs. It is less usual, but certainly not rare, to find the lymphadenoid tissue of the alimentary tract picked out, the "Hodgkin nodules" being found in the stomach, solitary follicles, and Peyer's patches. This brings to our consideration the so-called large-celled lymphosarcomatosis (Hammerschlag, Kaufmann) or Hodgkin sarcoma (Ewing). In this condition the stomach, intestine, and mesenteric glands may be extensively "infiltrated," and the spleen often shows a "lymphadenoid hyperplasia." Here the infiltration bears yet another distinctive histological picture, perhaps more like a neoplasm and less like a granuloma. There is, however, a growing mass of evidence, associated especially with the name of H. M. Turnbull, that this condition is allied to the "Hodgkin lymphogranuloma." The true place of other, less marked "lymphadenoid hyperplasias" in this disease-group cannot, of course, be settled until the problem of ætiology is determined.

Thus history repeats itself; for to-day, with an advance of a hundred years in our histological criteria, we place on our museum shelves Hodgkin's disease classified as a lymphogranuloma with "lymphosarcomatosis (so-called)" near by. Meanwhile, there is reason to suppose that many of the phenomena of Hodgkin's disease commonly described as rare are seen quite often by present-day morbid anatomists. Probably a very large amount of pathological material which would throw light on these subjects lies dormant in the great hospitals, and the question arises whether our modern Brights and Hodgkins are not so fettered by routine duties that they cannot publish what they know. We hope that they may live to do so; and also that a modern Samuel Wilks may be found with a generous desire to perpetuate their names.

THE LESSONS OF THE CÆSAREAN OPERATION.

A FEW weeks ago [1] Mr. St. George Wilson described in our columns three cases of rupture of the uterus through the scar of a Cæsarean section, whilst in our present issue Dr. Margaret Salmond reports six cases in which patients previously operated upon were delivered by the natural passages in subsequent pregnancies. Mr. Wilson's cases illustrate the possible serious consequences that the Cæsarean operation may have in later pregnancies and labour. From the figures of the collective investigation in the large general and maternity hospitals throughout the country, Eardley Holland, in 1920, showed that the frequency of rupture of uterine scars was about 4 per cent. of all cases in which pregnancy occurred after the operation and reached a late stage. He also found that rupture was nearly as frequent in pregnancy as it was in labour. The evidence pointed to the immediate cause being imperfect healing of the uterine incision with the formation of a thin scar which ruptured under the increasing tension of the developing gestation or the strain of labour. Probably sepsis and the physiological processes of involution both played a part in determining the imperfect healing. The rarity of uterine rupture in pregnancy or labour following the much more extensive wounds produced by the removal of myomata from the non-pregnant uterus in the operation of myomectomy favours the view that the processes of involution are in themselves a prominent factor in the production of a weak scar, and on this ground the lower segment operation has been strongly advocated by Prof. Munro Kerr, of Glasgow, as lessening the risk of rupture. Though the after-history of cases operated on by the low operation has as yet been reported in too few cases for a final decision, the evidence so far as it goes seems to indicate a greatly diminished risk.

Writing from another standpoint, Dr. Salmond draws attention to the temptation to adopt the Cæsarean operation as the easiest method of avoiding what may possibly be a difficult delivery by the natural passages. When this is done nothing is learnt of what the natural powers can do if given a fair chance, for all our measurements and methods of determining the fit of the head into the brim have not a tithe of the accuracy of the actual experiment of a labour carefully conducted and observed. Dr. Salmond therefore pleads for a trial labour continued long enough to decide with fair certainty on the need for delivering the child by an abdominal operation, and the lesson of these two papers is that greater hesitation should be exercised before resorting to Cæsarean section. A history of difficult labours and dead-born children or a single carefully observed labour is the clearest indication in all but the marked degrees of pelvic disproportion. Especially in young women must the temptation be resisted to perform an operation that carries with it both a greater immediate risk and a definite remote risk in every succeeding pregnancy, unless a trial labour or the induction of premature labour three or four weeks before term is clearly out of the question. Rather than increase the risks to the mother in all future pregnancies it is good practice to take an increased risk of loss of or injury to the child in the first.

[1] THE LANCET, Sept. 17th, p. 598.

VITAMIN D IN GREEN PLANTS.

THERE still seems to be some confusion about the antirachitic value of green food, although the results of recent work on the subject are quite clear. The confusion is undoubtedly a legacy from the time before the fat-soluble vitamins were differentiated. It was believed at that time that vitamin A and the antirachitic vitamin D were identical, and tests which revealed the presence of vitamin A were held to be an index of antirachitic potency also. In this way green vegetables, which are undoubtedly extremely rich in vitamin A, were deemed to be also rich in antirachitic vitamin; later work has shown that they do not commonly possess this value in any marked degree. H. Chick and M. H. Roscoe (1926), following up the work of E. M. Luce (1924), found that the power of pasturage to raise the antirachitic value of cow's milk is due more to the sunlight which the cows enjoy out of doors than to the green food which they consume. In tests on rats A. F. Hess and M. Weinstock (1924, 1925) found no antirachitic value in fresh lettuce leaves; H. Goldblatt and S. S. Zilva (1923) and T. F. Zucker and M. Barnett (1923) found none in spinach leaves, and Chick and Roscoe (1926) exhaustively examined spinach leaves and found no antirachitic value in them under any conditions, except at the height of summer when a very slight antirachitic effect was observed. But they found, as did Hess and Weinstock with lettuce leaves, that the spinach leaves when exposed to an artificial source of ultra-violet light became potently antirachitic. The reason for the apparen

non-activation of leaves exposed to sunlight remains a mystery, but the possibility exists that the overwhelming preponderance of vitamin A in green leaves, under the conditions of the experiment, somehow masks the presence of a small amount of vitamin D, perhaps because the growth produced in the experimental animals, receiving the green leaves, is much greater than the growth of the controls. A small degree of antirachitic activity has been detected in green alfalfa by H. Steenbock and co-workers (1922), by W. G. Gaessler and A. C. McCandlish (1923), and by E. V. McCollum and his co-workers (1924). It must, however, be concluded that the antirachitic value of green food is usually very slight, and in no way comparable with its richness in vitamin A, as as was at one time supposed.

The same misconception as applies to terrestrial green food also exists with regard to the green food of the sea. It used to be held that the codfish obtains the vitamin D, in which its liver oil is so rich, from its food and that the ultimate source of vitamin D for all organisms in the ocean is in the green algæ and diatoms which inhabit it. These, it was believed, form their vitamin D under the influence of direct insolation. It had been shown by H. L. Jameson, J. C. Drummond, and K. H. Coward [1] in 1922 that the marine diatom, *Nitzschia closterium*, is a rich source of vitamin A, and confusion as to its antirachitic power came about in the same way as happened with terrestrial green food. In a paper published this year J. L. Leigh-Clare[2] has disposed of this comfortable theory of the origin of vitamin D in the sea and has shown that *Nitzschia closterium*, grown with conditions of maximum insolation, has no antirachitic power. So we are still left in doubt as to which organisms provide the vehicle by which vitamin D is supplied to the inhabitants of the sea. Since the green ones are not responsible, possibly the surface baskers among the animals play a more important part than had been supposed, or possibly even, as C. E. Bills [3] suggests, vitamin D can be elaborated in the body of some marine animals, without the intervention of light. Unfortunately, however, there is still no definite answer to the frequent question: "Where does the cod get its vitamin D from?"

[1] Biochem. Jour., 1922, xvi., 482.
[2] Ibid., 1927, xxi., 368.
[3] Jour. Biol. Chem., 1927, lxxii., 751.

CONTROL OF HÆMORRHAGE DURING TONSILLECTOMY.

REMOVAL of the tonsils is perhaps the most frequently performed operation of surgery. Dr. Walter A. Wells, of Washington, states that in America it is almost the exception to find a person who, either in childhood or adult age, has not had it performed. Although it is to be hoped that the operation will never reach such a degree of popularity in this country—for it cannot be really necessary in so large a proportion of the population—it is nevertheless an advisable and beneficial procedure in a large number of patients. The great bugbear of the operation, especially in the mind of the public, is bleeding, which usually comes on as reactionary hæmorrhage a few hours after the operation. Even when the quantity of blood lost is not enough to be alarming, it may be sufficient to retard convalescence and is disturbing to the patient. For some time past, surgeons have been giving increased attention to their technique, with a view to preventing undue bleeding during the operation and to reducing the frequency of reactionary hæmorrhage after it; many surgeons now make it part of their routine to ligature any bleeding-point which persists, even in a small degree, after sponge-pressure has been applied for a few minutes. With this criterion most adult tonsils require one or more ligatures, but they are rarely necessary in young children; and there is no doubt that the adoption of such a routine materially adds to the comfort and safety of these patients. Dr. V. K. Hart, of Statesville, N.C.,[1] since tying bleeding-points during operation, encountered 14 cases of post-operative hæmorrhage in 800 cases, in eight of which further ligation was required. The chief reason against the universal adoption of primary ligature is its difficulty, for it is no easy matter to tie off a vessel in the tonsillar bed in the manner ordinarily employed in more accessible wounds; but technical difficulty is no valid excuse for non-performance, and it may reasonably be said that no one should attempt to remove a tonsil unless he is able to ligature a bleeding vessel in its bed. The simplest method of securing the bleeding-point is to pass a slip-knot of braided silk, held by a long forceps, over the hæmostat after the method of C. G. Coakley [2]; but this, too, requires considerable practice, and many ingenious instruments have been designed with a view to making ligation easier. Of these one class is a modification of the hæmostat forceps, providing a shoulder or a rounded end to enable the ligature to slip off it more readily; others provide an arrangement by which the loop of ligature is attached to the hæmostat and carried on it into the bed of the tonsil. An instrument of this type has been recently described by Dr. Angelo J. Smith, of Yonkers, N.Y.,[3] in which a sliding rod attached to the hæmostat carries the ligature at its distal end; on pushing down the rod, the ligature is brought beyond the point of the forceps into position for tying. Sir James Dundas-Grant achieves the same result by passing the slip-knot inside a metal or glass tube in the manner described in our last issue,[4] where Mr. Norman Eadie also describes his device of employing a hole drilled through the tip of the hæmostat as a pulley. Of another type is the instrument designed by Dr. Wells [5]; it is in the form of a forceps in which a short slotted needle is fixed to the end of one blade; on closing the instrument over the bleeding area and opening it again, a double thread is placed through the tissues at the point required, which can then be tied on the fingers in the usual way. Different operators will, of course, prefer different instruments, but there is no doubt that instruments which facilitate the technique of ligature will conduce to its more regular performance and so make bleeding after tonsillectomy a rarer occurrence.

[1] Clinical Medicine and Surgery, August, 1927.
[2] Journal of Laryngology, 1924, p. 493.
[3] American Journal of Surgery, July, 1927.
[4] THE LANCET, Oct. 8th, 1927, p. 760.
[5] Medical Journal and Record, August 17th, 1927.

THROMBOSIS OF THE SPLENIC VEIN IN CHILDHOOD.

SPLENIC anæmia is the name applied to the syndrome of severe anæmia, accompanied by considerable splenic enlargement, for which no clear cause such as rickets or syphilis can be found. The anæmia is of secondary type—that is to say, the reduction of hæmoglobin is out of proportion to the diminution in the erythrocytes. The classification of such cases is made more difficult by the fact that anæmia and slight splenic enlargement may result from many minor degrees of ill-health. In rare instances hæmatemesis or epistaxis are early symptoms. Cases tend to run a chronic course of from 3 to 12 years with the supervention of cirrhosis of the liver and secondary ascites later. This latter complex constitutes Banti's disease. It is not clear to what extent splenic anæmia if left to itself develops the full picture of Banti's disease. Removal of the spleen in the early stages has sometimes resulted in a cure, but once cirrhosis of the liver has developed splenectomy has had no effect. Whether the successful cases would have developed into Banti's disease later, or whether they belonged to another type, is as yet undecided. The success of operative treatment has led to the theory that there is primarily a morbid increase in blood destruction by the spleen which is cured by its removal. Thrombosis of the splenic vein has also been suggested as a cause, and in a recent monograph

Dr. Arvid Wallgren[1] has attempted to isolate a group of cases in which it was primary. He describes in great detail his investigation of four patients at the Infants' Hospital in Göteborg, and supplements these observations by a résumé of similar cases from the literature. Apart from secondary anæmia and splenic enlargement, his children all had attacks of profuse hæmatemesis in the early stages of the disease, these attacks bearing a definite relation to the size of the spleen, each loss of blood being followed by reduction in size of the organ which then enlarged again. In support of thrombosis, he emphasises the following facts which he observed in his four cases. The vessels and parenchyma of the three spleens removed at operation were engorged with blood as though the venous circulation was obstructed. The veins of the collateral splenic circulation were greatly enlarged. Thrombi were found in many of the smaller branches of the splenic vein. No actual thrombi were detected in the splenic vein itself at operation, but the examination was necessarily cursory. In the fourth case, which died after a severe hæmatemesis, thrombosis of the splenic vein was present. The effect of hæmatemesis on the size of the spleen he explains as follows. The pressure of the blood dammed back in the spleen by the obstructed vein finally becomes so great that one of the gastric or œsophageal branches of the collateral circulation ruptures into the stomach, tension in the spleen is relieved by hæmorrhage, and the organ becomes smaller in size. Eventually the establishment of an adequate collateral circulation might prevent further hæmorrhages, but extension of the thrombus would still be liable to cause further engorgement. The cardinal point in the diagnosis of thrombosis of the splenic vein is the association of splenic enlargement with hæmatemesis early in the disease, hæmorrhage being followed by a reduction in size of the organ and cessation by an increase. Owing to the danger to life from repeated hæmatemeses and progressive anæmia, Dr. Wallgren considers splenectomy the treatment of choice in these cases in spite of its dangers. The three patients in whom the spleen was removed were quite healthy two years or more after operation and had had no further bleeding.

This monograph brings strong evidence to show that there is a group of cases which might have been classed as splenic anæmia, but which are actually due to thrombosis in the splenic vein, and for which early splenectomy gives the best chance of permanent health. In England profuse hæmatemesis is a very rare symptom in children between 2 and 11 years of age, even in cases with splenic enlargement.

[1] Acta Pædiatrica, vol. vi., Supplementum, Feb. 7th, 1927. Contribution à l'étude des splénomégalies de l'enfance.

A WINTER TOUR IN SWITZERLAND.

CLIMATE is a ubiquitous study, but apart from our own it is probable that few members even of the medical profession realise what are the precise conditions of the climate, physical, intellectual, social, hygienic, into which they send their patients during the winter. We therefore cordially welcome the opportunity offered to practitioners by the Council of the Royal Institute of Public Health, with the collaboration of Sir Henry Lunn, of studying climatic conditions in all the more important parts of Switzerland. The tour is not to be hurried, and it will be possible to combine instruction with recreation, and particularly with that change of scene, right in the middle of our sunless winter, which has been shown by so many ex-Alpine patients to be a factor in maintaining their health. The party will leave London at 2 P.M. on Sunday, Dec. 18th, and the following day will reach Zürich, where they will visit the hospitals and university. Wednesday will be spent at Arosa, the highest health resort in Switzerland; Thursday and Friday will be devoted to Davos, where the party will be entertained by the Kurverein, and the next four days, including Christmas, will be passed at St. Moritz and Maloja, so as to see something of the winter sports. On Tuesday, Dec. 27th, the party will drive into Italy to reach the Rhone Valley and will spend the night in Milan, after which they are to return to Switzerland to visit Montana, as the guests of Sir Henry Lunn, and to see Dr. Rollier's famous clinic at Leysin, where the tour will end on Dec. 30th. The participants will then be at liberty to return to England or remain in Switzerland as they please. Further particulars may be had from the hon. secretaries of the Institute at 37, Russell-square, London, W.C. 1.

HAIR DYES.

THOUSANDS of years of experiment have failed to provide a hair dye which is definitely harmless and at the same time satisfies the popular demand. Dr. O. L. Levin, in the *Medical Journal and Record* of August 17th, divides the dyes in common use into three classes—the purely vegetable, of which henna is alone convenient, the metallic, and the synthetic organic. Henna is harmless, but will only dye the hair red, the so-called brown or black henna dyes containing metallic compounds. Metallic dyes, which form the bulk of the preparations usually exposed for sale, are most of them composed of a salt of silver, copper, mercury, tin, lead, or bismuth, mixed with a developer, which is usually pyrogallic acid. Silver dyes may contain sodium thiosulphate instead. The depth of the tint obtained depends on the amount of copper deposited as a sulphide on the surface of the hair. The pyrogallic acid corrodes and ultimately destroys the hair, and the copper is absorbed by the body in quantities that may be physiologically toxic. The danger of all metallic dyes lies in the necessity for their repeated application, which affords an opportunity for the metal to accumulate in the tissues and produce an obstinate illness. Lead is particularly poisonous and there is little doubt that its use should be absolutely prohibited. Probably the only metallic salt that is quite harmless is permanganate of potash, which is too slow and uncertain in its action to be of much value. The synthetic dyes are prepared on a base of paraphenylenediamine, a derivative of aniline, and are so noxious that nearly every European country forbids their use. They penetrate the hair-shaft and so give a much more lasting result than the metallic compounds. But for their virulent effect they would solve the problem very well. The symptoms that may be caused by poisonous hair dyes are local or constitutional, or both. The local reaction may be an acute dermatitis extending over the head, neck, face, and ears, and proceeding to œdema and vesiculation. This sometimes clears up untreated in a few days, but often the violent itching makes the patient scratch, and eczema and other secondary ailments follow. The itching may persist for months under treatment after the eruption has disappeared. Cutaneous tests may discover whether a given person is likely to react to a dye in this way, but probably no one is quite immune from constitutional metal poisoning, and users have been known to react locally after tolerating many previous applications. Short of prohibiting the sale of all dyes containing noxious substances, as has recently been done in New York, it is useful to insist on their correct description at sale.

SYNDROMES IN PHARMACOLOGY.

WHY adrenalin acts specifically on the sympathetic terminations, or why apomorphine attacks the vomiting centre, are examples of a question which pharmacology has so far failed to answer. Any method which suggests an approach to this fundamental problem of the specific action of drugs is welcome. Certain simple reactions can be explained; the astringency of tannic acid, for instance, is generally admitted to be due to the coagulation of proteins, and saponins bring about hæmolysis by dissolving the lipoid constituents of the cell envelope. Nevertheless these phenomena are exceptional, and the bulk of

pharmacology is still empirical. Prof. J. A. Gunn, in his presidential address to the Therapeutical and Pharmacological Section of the Royal Society of Medicine on Tuesday, Oct. 11th, pointed out this limitation clearly, and suggested a concept that he and others believe may be of some assistance in the huge task of removing it. It is a commonplace that many dissimilar substances have similar effects on the organs of the body; ipecacuanha, tartar emetic, senega, and squill, for instance, all produce emesis and increased secretion of the sweat and salivary glands and of the bronchi. This group of reactions, produced by a variety of substances having chemically nothing in common, may appropriately, he says, be called a syndrome. Since they are due to a common and explainable physiological mechanism they deserve the qualification of "homogeneous." It is, however, the "heterogeneous" class of syndromes that Dr. Gunn anticipates may one day be of greater scientific importance; that in which the similarity of effect cannot be related, in the light of present knowledge, to known physiological or biochemical facts. While investigating a new alkaloid known as harmaline he found that it had a powerful toxic action on protozoa, impaired the conductivity of nerve, arrested the perfused frog's heart in systole in strong solutions and in diastole in weak concentrations, stimulated the mammalian uterus and, in fact, recalled the actions of quinine. He argued that, if the resemblance were more than accidental, harmaline should, like quinine but unlike most alkaloids, produce a rigor of the voluntary muscles, and experiment proved that it did. He also found that it cured acute and relapsing malaria. Now there is no known chemical resemblance between these two alkaloids which could explain their similarity of action, and the syndrome is one for which no common physiological basis can be found. It is a heterogeneous syndrome. The possible explanations are several: there may be an undiscovered chemical affinity between the two drugs; the syndrome may be really homogeneous, due to some unsuspected effect on, for instance, the blood composition; or—and this is a supposition that opens up wide vistas of speculation—there may be some chemical similarity between the various nerve centres which ensures that two given drugs, even if they have chemically nothing in common, which attack one centre will attack all. There is, as every investigator in this field knows, distinct evidence of "trends" in selective action; of the preference of chemically dissimilar substances for physiologically dissimilar tissues. Physostigmine stimulates all parasympathetic endings (an homogeneous syndrome), but in higher concentrations it stimulates the nerve ends in striped muscle. Atropine, which has nothing in common with physostigmine, neutralises both these actions. The inference is that there is a chemical similarity between the two types of terminals—a hypothesis which is supported by several authorities. These are only a few examples of a range of associated phenomena, "syndromes," which must widen daily as the science of pharmacology advances. Study along these lines promises a reward outside the scope of the usual attempt to correlate physiological action with chemical constitution, which the increasing complexity of chemical research is showing more and more clearly to be impracticable.

WE regret to record the death at Buenos Aires on Oct. 8th of Sir John O'Conor, the resident medical officer of the British Hospital in that city.

IT appears to be an open secret that the successful swimmer of the Channel, who walked on shore at Folkestone on Tuesday morning last, and whose triumph is attributed to a "Miss Mona McLellan," is in real life Dr. Dorothy Logan. Dr. Logan, who is in charge of one of the female special departments of King's College Hospital, has gained a victory after several notable attempts, having on a previous occasion got within a mile and a half of Dover after swimming for 25 hours.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

CCXLV.—TREATMENT OF LOBAR PNEUMONIA, BRONCHO-PNEUMONIA, AND BRONCHITIS IN CHILDREN.

I. GENERAL CONSIDERATIONS.[1]

ALTHOUGH classical examples of these three conditions are distinguishable, there are many borderline cases in which diagnosis cannot be made. Since exact differentiation, though desirable, does not affect treatment, which is mainly symptomatic, they are here considered together with certain reservations.

Briefly the three conditions may be outlined as follows:—

In *lobar pneumonia* the infecting organism in nearly every case is the pneumococcus and the distribution of the inflammation in the lung is lobar. If there are no complications the temperature usually reaches normal by lysis or crisis within a week of onset. Although not generally recognised as such, this is probably the commoner pneumonia of childhood. The disease becomes increasingly severe with increased age and weight. In children under two years old without complications, the degree of illness is slight and the signs of consolidation often transient. When this is so diagnosis is often a matter of opinion.

In *broncho-pneumonia* the infecting organisms are streptococci, staphylococci, pneumococci, *B. influenzæ*, and others. The distribution of the inflammation is lobular, but this is often not shown by physical signs, because a lobular consolidation often makes a whole lobe solid. In children it occurs most frequently in connexion with influenza, whooping-cough, and measles, and in these bronchitis often precedes it. Broncho-pneumonia is a very severe disease; the temperature remains high for several weeks, cyanosis is a marked feature, and death the usual termination. Should recovery occur some degree of fibrosis of lung will probably remain.

Bronchitis.—The severity of an attack of bronchitis depends on the extent to which the bronchial tubes are involved. If only the large tubes are affected it is a mild disease. If, however, the inflammation has extended into the smallest bronchioles the clinical picture merges closely into that of broncho-pneumonia and the physical signs of the two are often identical. To what extent an acute bronchitis may develop into broncho-pneumonia is not at present quite clear. Possibly the type of organism determines this, and accounts for the fact that the bronchitis of measles, whooping-cough, or influenza appears to develop into broncho-pneumonia while ordinary bronchitis does not do so to the same extent.

Prevention.

Bottle-fed babies and debilitated children, especially those with a tendency to rickets, are particularly liable to develop bronchitis and pneumonia. There is no specific mode of prevention, but avoidance of cold and damp probably lowers the incidence considerably. The development of bronchitis during an attack of whooping-cough or measles or in an influenza epidemic is a signal for special care.

Differences Between Pneumonia in Adults and Children.

Pneumonia, like other acute diseases in children, is often ushered in by convulsions. This is especially so in apical pneumonia which is commoner in children. The possibility of meningitis should not be forgotten, but too hasty lumbar puncture to exclude this diagnosis is wrong. The rapidity and type of respiration are the best guide to early diagnosis. Abdominal pain is specially frequent in children at the outset of lobar

[1] The concluding section of this article—Special Symptoms—will appear next week.

pneumonia and may make the diagnosis from acute appendicitis very difficult. Again, the rapidity and type of respiration are the best guide. If in true doubt it is better to open the abdomen unnecessarily in lobar pneumonia than to fail to operate in acute appendicitis on the assumption that the child is probably suffering from pneumonia. Many cases of lobar pneumonia in children operated on by mistake do well. The younger the child the less is the danger of cardiac failure. In mild attacks the strain upon the heart is very slight and convalescence is correspondingly rapid.

When first called to see a child with broncho-pneumonia it is important to remember how often this is a complication of whooping-cough or measles. If the history is indefinite the child should be isolated until the possibility of infection has been excluded.

General Management.

Successful treatment depends as much on the nurse as the physician. In severe cases the value of a good trained nurse cannot be over-estimated. The child should be put to bed in an airy room at even temperature. Contact with other children should not be allowed.

Diet.—While there is pyrexia a fluid diet is best. Milk, whole or diluted, is suitable for most children, but mutton or chicken broth, beef-tea, barley-water, and lemonade are also valuable. Fluids should be given freely. Feeds should be small in quantity and given every two or three hours. In severe cases with digestive disturbances, whey or albumin water are valuable, and in mild ones custard, junket, milk pudding, and Benger's food may be allowed.

In some children there is a tendency to acidosis. When this is suggested by drowsiness and apathy, associated with acetone bodies in the urine, the amount of fat in the diet should be limited and carbohydrates given freely. Milk is then not a good article of diet on account of the high percentage of fat it contains, but sugar should be given freely dissolved in lemonade.

Care of the Nose and Mouth.—It is important to keep the mouth as clean as possible. A septic throat, suppurating middle ear, or purulent nasal discharge is often traceable to neglect of this precaution. A weak antiseptic mouth-wash of carbolic or potassium permanganate should be used for this purpose. Obstruction of the nasal passages by catarrh is sometimes a cause of increased dyspnœa. They should be kept as clear as possible by encouraging the child to blow the nose. When this is not effective and nasal obstruction seems to be the cause of respiratory distress, the anterior nares may be cleared with pledgets of cotton-wool and gently irrigated by warm boric and bicarbonate solution (aa ℥i. ad Oi.) with a small syringe. This should not be done unless the obstruction is definitely distressing the child. To do it as a routine is, in all but a few cases, only meddling with a sick child unnecessarily.

Purgation.—At the outset it is well to give a purgative; gray powder is suitable for children under 3 and calomel followed by salts for older ones. Subsequently syrup of senna, senna pods, or cascara are appropriate laxatives. Symptoms should be dealt with as they arise and are discussed below under separate headings. No routine treatment is indicated. Rapidity of convalescence depends on the type and severity of the attack. After an attack of acute bronchitis of the larger tubes or mild lobar pneumonia, a child of 3 may be allowed to walk about the cot two or three days after the temperature is normal. A child of 12 should stay in bed ten days after mild lobar pneumonia. The severity of the attack being equal, the length of time spent in bed after the temperature is normal should vary directly with the size and age. After broncho-pneumonia convalescence is much slower and depends on the amount of permanent damage to the lung.

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St. Thomas's Hospital.

Special Articles.

SCHOOL EXCLUSION AND CLOSURE FOR INFECTIOUS DISEASE.

A MEMORANDUM on Closure of and Exclusion from School was first issued by the Board of Education in 1909, and a revised edition appeared in 1925 under the joint auspices of the Board and the Ministry of Health. The present reprint has been necessitated by the issue in 1926 of the revised Code of Regulations for Public Elementary Schools, and in January, 1927, of Administrative Memorandum No. 51, in which is laid down the principle that if, during epidemics of infectious disease, the power to exclude individual children from school be used to the best advantage, it is only in special and quite exceptional circumstances that it will be necessary to close a school in the interests of public health. Experience of the last 15 years strengthens this view, although until this year it was possible for local education authorities to close schools during the prevalence of epidemics of infectious disease not purely in the interests of public health, but on financial grounds, in order to prevent loss of grants owing to the lowered attendance of children at such times. The Board and the Ministry will no longer accept the closure of schools for medical reasons unless such closure is in strict compliance with the principles laid down in this Memorandum.

The present Memorandum deals primarily with the closure of public elementary schools and the exclusion of individual children from such schools on account of infectious disease, but the provisions apply with modifications to special schools and institutions receiving grants. In the case of secondary schools, in which the problems of infectious disease seldom arise in an acute form, the Memorandum anticipates that the governing bodies and heads will be fully alive to the importance of the subject.

Parts I. and II. of the Memorandum deal with the powers of local sanitary and education authorities and their coördination. Part III. deals with the collection of information by various groups of staff officers and the part played by early recognition in the prevention of spread. In Part IV. are set out the general considerations as to the action to be taken in respect of infectious diseases—on this comment is made in our leading article. Part V. enumerates the rules for action in respect of particular diseases. This part is reproduced here substantially at length along with a table of incubation and exclusion periods of the commoner infectious diseases, which will be of value to all practitioners.

RULES FOR ACTION IN RESPECT OF PARTICULAR DISEASES.

The diseases for the prevention of which the exclusion of particular children from school or school closure may be required are principally those which spread by infection directly from person to person, such as measles, whooping-cough, scarlet fever, diphtheria, epidemic influenza, small-pox, chicken-pox, and rubella (German measles). In rare cases the same measures may be necessary for enteric fever and diarrhœal diseases, when these spread through local agency, such as infected school privies.

In the light of the general principles already set out the following procedure is suggested in order to enable the medical officer of health or the school medical officer to advise as to the minimum duration of exclusion of school-children which can with reasonable safety be adopted in the several more common infectious diseases. The recommendations made are subject to the proviso that each case, as it occurs, requires and should receive individual consideration.

Scarlet Fever.

Exclusion of Cases.—When treated in the isolation hospital he is usually detained for about six weeks,

and longer if any discharges continue from ear, nose, or throat. After return home, in view of the occasional protracted infectiousness of patients with such discharges, and sometimes even of those without them, the child should not return to school for two weeks, and a notice should be sent to the teacher and another to the parent to this effect. Wherever practicable, however, the child should be examined by the school medical officer or by an experienced health visitor or school nurse before readmission to school, and where this practice is followed it may be permissible for a child, free from any sign of infection, to return at the expiry of one week.

When the patient has been treated at home similar rules apply, provided that the patient and his rooms have been effectively disinfected after the illness has ended.

Exclusion of Contacts.—If the patient has been removed to the isolation hospital the teacher and the parents should be instructed to keep children living in the same house away from school for a period of one week from the day on which disinfection, subsequent to the removal of the patient, has taken place, and the parents should be instructed to keep these children out of contact with other children for the same period. An exception to this rule may be made for those children in respect of whom the school medical officer has satisfied himself, directly or through the medical officer of health, that they have already had the disease; such children may be allowed to return immediately after disinfection of the premises.

If the patient is treated at home no other children from the same house should attend school while the patient is infectious, nor for one week after the end of his period of isolation.

School Closure.—If there is active coöperation between the school attendance officers and teachers and the medical officer of health school closure should only exceptionally be needed for scarlet fever. In school this disease usually spreads slowly from child to child, and not in the explosive manner characteristic of measles. Hence diligent search for slight cases and supervision of "contacts" should in most instances render school closure needless.

Diphtheria.

Exclusion of Cases.—Whether treated in the isolation hospital or at home it is the practice in some districts to regard the patient as in an infective condition until three successive swabs taken on different days have given consistent negative results. These swabs should not be taken until at least 48 hours have elapsed since the last application of any disinfectant to the throat.

In certain hospitals it is now the practice to rely upon the complete recovery of a patient from all clinical symptoms of the disease rather than upon bacteriological methods, and the experience of these hospitals seems to show that by such means the spread of infection can usually be avoided.

In view of the debility left by an attack of diphtheria, return to school should usually be deferred for two or three weeks or longer, at the discretion of the medical officer, after the end of the attack, as determined by bacteriological or clinical methods.

Exclusion of Contacts.—Contacts in respect of whom positive swabs have been obtained should, as a general rule, be excluded from school until two or three successive swabs give negative results. If circumstances permit tests for virulence may be employed, and this should always be done, if possible, in cases where the bacilli persist for long periods without any signs of disease. If the organism has been shown to be non-virulent a child may be dealt with as though the swab were negative.

When the patient has been removed to the isolation hospital the children in the same house should be kept away from school for two weeks. During this period they should be closely watched for any signs of diphtheria developing, and should only be readmitted after a final careful clinical examination, which should be supplemented by the taking of a swab, with negative result. In the case of a child free from any signs of disease the period of two weeks may be shortened at the discretion of the medical officer when bacteriological examinations have been made with negative result.

When the patient is treated at home no other child from the same house should attend school while the patient is infectious, nor for ten days afterwards. This period must be extended in the case of children suffering from sore throat, sore nose, or any other signs of possible infectivity until a bacteriological report establishes their non-diphtherial nature. In exceptional cases, where complete isolation can be procured, contacts may be dealt with as though the patient had been removed to hospital.

School Closure.—Although diphtheria, like scarlet fever, and unlike measles, usually spreads comparatively slowly in schools, it is apt to be very persistent, and not infrequently causes serious mortality, especially among children under 5 years old. For these reasons, when cases of this disease occur in an infant school, there should be no hesitation in excluding children from attendance who are below the age of compulsory school attendance. Closure of a school or department is only justifiable when the precautionary measures detailed in the preceding paragraphs have failed to arrest the spread.

The need for protracted exclusion from school of recent diphtheria patients has already been emphasised. The systematic use of these measures should obviate the need for school closure for diphtheria.

Measles.

Exclusion of Cases.—Children attacked by measles should be kept from school for three weeks from the first appearance of the rash. This period should be extended if there are complications or sequelæ.

Exclusion of Contacts.—In large towns, and in the smaller districts in which the majority of children over seven years of age who are attending public elementary schools have had measles, the practice is frequently adopted, when measles breaks out in a household, of excluding from school attendance only those children of the same household who attend the infant school, and those older children of the same household who have not had measles. These particular children of the same household should be excluded from school until 21 days from the date of onset of the illness of the last patient with measles in the house.

The above procedure can be recommended, as the result of experience in large districts, to be worthy of general adoption; but it may need to be modified in accordance with the special circumstances of a district, particularly with reference to its past history as to measles. In order that the procedure may be efficiently carried out, it is very desirable that the past history of every child in regard to infectious disease, as recorded on the medical inspection card, should be tabulated, and that the table so obtained should be kept up to date in each class, and readily available for the purpose of determining, when a case of measles occurs, which children should, and which should not, be excluded from attendance at school.

School Closure.—Although school closure has been, and is still being adopted more frequently on account of epidemics of measles than for any other disease, there is a general consensus of opinion that except in the case of scattered rural populations, it is useless as a means of checking the spread of the disease. As a rule closure is deferred until a large proportion of the children are already absent, but even in those cases where early class closure has been attempted after the occurrence of a single case, experience appears to show that the only effect is to postpone and prolong the epidemic. It appears certain that in populous districts school closure for measles has but little value as a public health measure.

In thinly populated districts, where the homes are comparatively isolated, and children have long distances to come to school, school closure may, on the other hand, have a very definite value in preventing the spread of measles from one village to another,

and in reducing the risk of exposure to bad weather of those children who are already in the early stages.

German Measles.

In this mild disease (rubella, röteln) children need not be excluded from school for more than a week, dating from the first appearance of the rash. Immediate child-contacts in the home who have not had German measles should be excluded from school for three weeks from date of last exposure to infection by a patient in the eruptive stage.

Whooping-cough.

The rules as to exclusion from or closure of school for this disease should be similar to those for measles, except that the infection of whooping-cough probably lasts six weeks, and the children in the house who attend the infant school should be excluded from school for this period—or as long as cough continues.

Small-pox.

Children suffering from small-pox should be excluded until all scabs and "seeds" have disappeared. All contacts should be vaccinated or revaccinated, and should be kept under medical observation for a period of 16 days; for this purpose exclusion of contacts from school is not generally necessary or desirable.

Chicken-pox.

Children suffering from this disease should be excluded for three weeks or until all scabs have disappeared. The possibility of small-pox should always be kept in mind, and inquiry should be made in all instances as to the state of vaccination of supposed cases of chicken-pox. Infants, and other children who have not had chicken-pox, should be excluded from school for three weeks from the date of the last exposure to infection.

Mumps.

Children suffering from mumps should be excluded and not readmitted until one week after the subsidence of the swelling. In this disease, owing to its character and long incubation period, exclusion may, as a rule, be confined to the patient himself.

Influenza.

Children showing symptoms of influenza should be excluded from school during the period of attack, and should not be readmitted until a careful medical examination of the heart and lungs has been made to eliminate possible latent complications and sequelæ. In epidemics of influenza closure of schools may be employed occasionally with advantage, particularly in rural and small urban districts where the excluded children have few opportunities of coming in contact with each other outside the school.

Tuberculosis.

Pulmonary tuberculosis in a recognisable form is seldom a large factor in school life. Children known to be suffering from this disease should, at the discretion of the school medical officer, be excluded from school. All cases of open tuberculosis other than pulmonary should of course be excluded.

Epidemic Nervous Diseases.

Cerebro-spinal Fever.—A child suffering from cerebro-spinal fever will not even in favourable circumstances be in a fit state of health to attend school until three months have elapsed from the onset of the illness. Immediately the disease is recognised in a school the class-contacts should be kept under close medical observation for two weeks. If it can be arranged, such contacts should be accommodated in open-air classes. Home-contacts should be excluded from school for a period of three weeks. The disease has a high degree of fatality; in the event of recovery, sequelæ are not often present. Some patients display mental instability and irritability of temper, and it is desirable that all such cases should be kept under special medical observation for a year.

Acute Poliomyelitis.—The incubation period is usually placed at from two to ten days, the average period being three to four days. A child developing the disease should forthwith be excluded from school. If the paralytic signs are absent or extremely slight, and the general health is good, the child may be readmitted to school at the expiration of six weeks. Careful watch should be maintained in non-paralytic cases for the supervention of paralysis, as recurrent cases occur in which the paralysis is manifested after the acute symptoms have subsided. Paralytic cases will require a much longer period of school exclusion, and are afterwards better treated, if practicable, in special orthopædic institutions.

In times of epidemic prevalence, exclusion of all children in a particular class, closure of infant departments, and even of the whole school, may be required. It is highly important in epidemic periods to recognise mild and abortive cases of poliomyelitis, as they are largely instrumental in spreading the disease. The class-contacts of a child suffering from poliomyelitis should be carefully examined from this point of view, and any such child showing symptoms of gastro-intestinal disorder (vomiting, mild diarrhœa, &c.), catarrh of the upper respiratory passages, or muscular twitchings or neuritic pains should be regarded provisionally with suspicion, and should be kept under supervision and, if necessary, excluded from school. Home-contacts should be excluded from school for a minimum period of three weeks.

Encephalitis Lethargica.—If the disease develops in a school the child should at once be sent home, and care be taken to see that it is receiving suitable medical care in hospital or otherwise. Search should be made for school-contacts of the case. These contacts should be medically examined and watched. Any child exhibiting signs and symptoms suggestive of mild or abortive encephalitis lethargica should be excluded from school for a minimum period of six weeks.

Home-contacts in the affected household should be kept from school for three weeks after the isolation of the patient. Children who have suffered from the disease take a long time to recuperate, and they should not be allowed to resume school attendance until a careful medical examination pronounces the general health completely restored. In favourable circumstances a child may be permitted to resume school after the lapse of six months from the time of school exclusion; in many instances this period has to be extended to a year or even longer.

All children who have suffered from epidemic encephalitis, whether in the abortive, mild, or severe forms of the disease, should be kept under careful medical observation for a period of two years after the attack, as sequelæ may appear at any time within this period. The more important of these after-effects may include mental symptoms, symptomatic paralysis agitans, excito-motor sequelæ, and various sensory conditions. As a rule, children showing after-effects, unless in the mildest possible degree, should be excluded altogether from school, partly for their own sake and partly on account of the effect upon other children.

Enteric Fever and Erysipelas.

Children coming from houses in which have occurred cases of erysipelas or of enteric (typhoid) fever, who are not themselves ill, need not as a rule be excluded from school. Nor is school closure required for either of these diseases, except in the rare instances in which enteric fever is due to some condition directly connected with the school.

INCUBATION AND EXCLUSION PERIODS.

In an appendix is given a table of the incubation and exclusion periods for the commoner infectious diseases. It should be understood, when this table is used, that infectious disease is a process, not an entity, and that the process is liable to modification by many circumstances, such as the intensity of the infection, and the condition and resistant power of the body. The periods indicated in the second and

third columns of this table should therefore be regarded as approximate only.

Disease.	Incubation period (in days).	Interval (in days) between onset of illness and appearance of rash.	Period of exclusion.	
			Patients.	Contacts.
Scarlet fever.	1–8	1–2	Two weeks after return from hospital, or, in the case of patients treated at home, two weeks after release from isolation.	One week after removal of patient to hospital, or, in in the case of patients at home, one week after release from isolation.
Diphtheria.	2–10	—	Two to three weeks after end of attack; or until pronounced free from infection by a medical practitioner.	Two weeks after removal of patient to hospital, or, in the case of patients treated at home, ten days after release from isolation. Negative swabs should be obtained.
Measles	7–14	4	Three weeks from date of appearance of rash.	Infants, and other children who have not had the disease, three weeks from date of onset of last case in house.
German measles	5–21	0–2	One week from date of appearance of rash.	Infants, and other children who have not had the disease, three weeks from date of last exposure to patient with rash.
Whooping cough.	6–18	—	Six weeks from commencement of cough.	Infants only, for six weeks from date of onset of last case, or three weeks from date of last exposure to infection.
Mumps.	12–23	—	Until one week after subsidence of swelling.	No exclusion.
Chicken-pox.	11–21	0–2	Three weeks, or until all scabs have disappeared.	Infants, and other children who have not had the disease, three weeks from date of last exposure to infection.
Small-pox.	10–14*	3	Six weeks, or until the patient is certified free from infection by a medical practitioner.	Sixteen days, unless recently vaccinated, when exclusion is unnecessary.

* Usually 12 days.

SELBY WAR MEMORIAL HOSPITAL. — Viscount Lascelles last week opened this hospital of 20 beds which has cost, with equipment, £16,000.

COUNTY CLARE HOSPITALS "FALLING DOWN."—Commenting upon the recommendation of the Poor-law Commission of the Irish Free State that Boards of Health should be abolished, Mr. E. F. Kerin, chairman of the Clare County Board of Health, states that "all the hospitals in this county are falling down." He adds that "in the Kilrush District Hospital and the County Nursery rain is falling on the beds of the patients, slates are off, windows broken, and draughts whistle through every corridor." In the County Home at Ennis nearly 120 imbeciles are "packed together in shocking conditions."

HEREFORDSHIRE GENERAL HOSPITAL.—This institution is to be enlarged from 124 to 160 beds. The building, which dates from 1776, is in many respects archaic; the fittings and amenities are entirely out of date. It is proposed to provide a new surgical wing, a maternity unit, isolation and pathological blocks, and a new out-patients' department, and to make other enlargements and improvements. The scheme is estimated to cost nearly £75,000 and an appeal, addressed especially to Herefordians, has been launched. The chairman of the appeal committee is Lieut.-Colonel J. C. Sleeman, who may be addressed at the hospital.

THE PROBLEM OF VENEREAL DISEASE.

IMPERIAL SOCIAL HYGIENE CONGRESS.

WESTMINSTER, OCT. 3RD–7TH.

(*Concluded from page 784.*)

ON Friday, Oct. 7th, the chair was taken by Dr. T. F. DEWAR (Scottish Board of Health), and the subject of discussion was the

Administrative Aspect of Social Hygiene.

The Chairman reviewed the peculiar difficulties of Scotland and the work done there. The thorough education of general practitioners, he said, seemed the only way of reaching the scattered populations of the hills. There was in the north a very strong body of opinion in favour of extended legal powers, and this group included all the medical officers engaged in clinical venereal disease work and the representatives of the five predominant areas of population. The Board of Health were considering this need for further power very cautiously and very earnestly, especially with reference to congenital syphilis. It seemed monstrous that the parents of a syphilitic child should be allowed to go on producing infected children. He recalled the elaborate procedure brought into force by a case of small-pox, which had originally received its name because it was, indeed, a "small" scourge compared with syphilis, the "great pox."

Dr. J. R. KAYE (West Riding) explored the possibilities of new ideas in the prevention of venereal diseases, not only as a patriotic necessity but as a public health problem and an issue of the first importance. It was, he said, only when venereal diseases were faced as a public health problem and discussed impersonally that any progress could be made. It was chiefly from this angle also that the carrier could be eliminated. The present machinery was quite inadequate for gonorrhœa, and, although most syphilitic patients had been rendered at least non-infective, gonorrhœal patients who did not finally drift to the clinic far too often became chronic invalids. Where hospitals were not available, effective measures could best be accomplished by utilising centres in large towns by agreement between local authorities. In rural districts remote from a venereal disease centre women and children could be treated for syphilis at a child welfare centre, but it was impossible so to treat gonorrhœa. One solution was to provide beds for these patients in infectious diseases hospitals, and this would probably be economical in the long run, as the time of treatment would be shortened by many months.

Every effort should be made to trace patients and contacts and bring them under treatment and supervision. Married women suffering from gonorrhœa, according to report, showed a striking increase in 1925, and difficulties in the way of treatment were great. Even if the woman was aware of her condition and was willing to be treated, the fear of neighbours' comments, the difficulty of leaving children, and the time away from a busy home seemed to make it impossible. One solution was to have clinics open for admission at any time of the day, or to give facilities at child welfare centres.

Instruction to the general public must be placed first and foremost. The public should realise that the evils of misconduct were not confined to the individual himself, but were an injury to the community, anti-social conduct, and a potential source of danger to society. Education was not alone for the infected. What was wanted was a racial conscience, and a recognition that to keep fit is as much in the interest of the nation as of the individual. It was horrible to learn that 25 males and 475 females under 14 years suffered from gonorrhœa in 1925. There was no reason why sex physiology should not be taught by a trained person to all scholars over 13 years of age. All great social problems were in the end educational problems. Recreation also was very important. By coming to a clinic for treatment

a patient became a party to an agreement to continue treatment, and if he did not do so any method of inducing or compelling him was justifiable. Some means such as notification, and if necessary threatened publicity, was indicated, particularly when the lapse might mean the infection of others. The advantages were on the side of compulsory notification, but it was admitted by all that the best way was sex morality and higher ideals. The only true prophylaxis in the congenital treatment of all cases was the prohibition of marriage until a probable cure had been effected.

Dr. Kaye concluded: "After reasoned consideration of all other measures, I am of opinion that a mighty gap in our efforts would be filled up if it was penal for any person suffering from a contagious disease of the sexual organs knowingly to endanger or infect a person of the opposite sex. Such a power would render isolation really unnecessary . . . Refusal to be examined would be tantamount to acknowledgment of the existence of disease and afford prima facie evidence that a person is infected. I would not limit the suspect to any type, but to those reasonably suspected and believed to be suffering, for the clandestine, and, unfortunately, the married, are now regarded as disseminators of infection not less than the prostitute."

Dr. A. S. M. MACGREGOR read a paper on the

Powers and Responsibilities of Local Authorities in the Venereal Diseases Campaign.

He reviewed the powers conferred on local authorities in 1916 and the work done in Glasgow, where it had been found that the isolated ad hoc clinic was as successful as that conducted at a general hospital. For mothers and young children, however, it had been found essential to provide facilities for venereal disease treatment at antenatal and infant consultation centres. As schemes had been perfected, he said, the inherent weakness of the voluntary system had become apparent, and Glasgow was all in favour of compulsory notification. The number of patients who stopped attending a centre as soon as their symptoms had been alleviated was never less than a quarter of the total, and a sense of futility very naturally arose in the minds of the medical and administrative officers of these clinics. The figures from the Glasgow city clinics showed that, while half the men ceased attendance before the end of their first course of treatment, only 10 per cent. of women defaulted. The appointment of a special nurse to "follow up" women and children had been attended by some success, but was far from solving the problem. The principal causes of defaulting were indifference and carelessness, and in the great majority of cases a hint of the existence of power to enforce treatment would be sufficient. Local government in this country could now be trusted to use such powers judiciously and temperately. To the various objections raised by the opponents of compulsion there could be no answer but a trial. Matters could not be allowed to remain as they were. As a basis for discussion Dr. MacGregor laid down suggestions which ensured the treatment of parents of infected children and secured the compulsion of defaulters, removing them to hospital, if necessary, on a magistrate's order.

Dr. T. FERGUSON (Darlington) read a paper on

Congenital Syphilis as a Public Health Problem.

He gave figures illustrating the grave problem presented by congenital syphilis, its mortality and morbidity, and the drain it inflicted on institutional accommodation. The importance of early systematic treatment, he said, was only equalled by the importance of continuing to a final cure. This might very often need five years of supervision. The ideal method of dealing with congenital syphilis was to prevent it by the adequate treatment of acquired syphilis. Failing that, the strongest weapon was early treatment of the expectant mother. Every antenatal examination should include a search for venereal disease, as a missed diagnosis at that stage might easily cost an infant life. Routine coöperation between treatment centre and antenatal clinic was absolutely essential, and it was well for a syphilologist to attend the welfare centre. Another useful routine was the examination of blood from the umbilical cord at birth by the Wassermann test. Children reaching the venereal disease centre through the general medical practitioner, the hospital, and the school clinic generally arrived too late. The number of untreated syphilitics in the school population was alarming, and most of them had developed intractable lesions by the time they were seen. Collaboration between the V.D. officer and the school medical service was vital, and should be directed chiefly towards examining new entrants and children at nursery schools. In county boroughs the services of the venereal diseases officer were best made available by appointing him a part-time member of the school medical staff. The congenital syphilitic was as likely to deteriorate as the tuberculous child, and after-care could not be neglected. It was best given by the health visitor. A certain number of children needed in-treatment and an open-air régime for many months, and could be provided for in small annexes to existing sanatoriums. Syphilis when tackled early was an eminently curable disease.

Dr. R. FORGAN (Lanark) suggested as measures, short of compulsion: (1) compulsory notification of pregnancy; (2) universal compulsory certificate of health for marriage; (3) schemes for filling the most important gap between the infant welfare doctor and the school medical officer; (4) more thorough examination and treatment of prisoners; (5) more stringent control of mental defectives and moral imbeciles; (6) careful watch over soldiers and sailors; and (7) the legalisation of the sale of ad hoc disinfectants. He wished, however, to lay chief stress on the tremendous power and responsibility of the general medical practitioners. Many of them were very inadequately trained in the modern treatment of venereal disease, and it was said that they would resist any attempt to put their patients under specialist care. The working man was often said to be misrepresented by his trade-union officials and to be a perfectly reasonable person in reality. It might be well to ask the practitioner himself what he thought about the matter, and not to take the unsupported word of the British Medical Association. He had sent out a questionaire to practitioners in Lanarkshire and had had 104 replies. Of these, five were satisfied with present arrangements, four were against compulsory treatment, four were in favour of compulsion but objected to sending their cases on to specialists, and 91 approved of a scheme of modified notification and compulsory treatment by a special panel of doctors. Of these 91, 52 did not wish to treat their patients for venereal disease and were quite willing to pass them on, and 39 expressed a wish to serve themselves on the special panel. He suggested that these figures might prove representative of the medical profession throughout the country.

Miss ALISON NEILSON put the case for the non-compulsionist, maintaining that the experience of other countries showed that its results were no better than those of our present voluntary confidential scheme, which would be gravely prejudiced by the introduction of notification.

Dr. F. ROBINSON (Cambridge) spoke of the difficulties of the rural area, where the essential privacy in treatment was impossible unless the V.D. officer could visit the patients in their homes or attend at infant welfare centres.

Dr. C. L. PARK (Australia) and Mr. A. MOORE (London) maintained that compulsory notification in the colonies had been a success, provided the cases were followed up.—Mrs. SOMERVILLE (Edinburgh) was also in favour of compulsory notification, and pleaded for the establishment of toddlers' playrooms, open at least two hours a day. They were very cheap to run, and there the small children could be taught good habits and self-restraint, given air and exercise and provided with medical examination, making

continuity between the infant care centre and the school. Edinburgh had ten of these playrooms.

Dr. W. G. SAVAGE (Somerset) described the successful scheme tried in his district, whereby the school medical officers were trained in venereal disease and were able to take country clinics without bearing the stigma of "V.D." He was in favour of compulsion provided it was kept entirely on public health grounds. On those terms the public would put up with a great deal, he thought.

Mrs. NEVILLE ROLFE did not think this country had yet reached the time when a compulsory system could be instituted without rousing a storm of protest. Such a psychological reaction would completely vitiate the good that might be done and destroy all the atmosphere of confidence which had been so patiently built up.

LONDON MEDICAL EXHIBITION.

(*Concluded from p. 786.*)

LAST week we gave a brief summary of many of the drugs and pharmaceutical preparations shown at the London Medical Exhibition, which was held from Oct. 3rd to 7th. Below will be found notes of other important exhibits.

SURGICAL INSTRUMENTS.

ALLEN AND HANBURYS, LTD. (37, Lombard-street, London), had a large display of surgical instruments mostly in stainless steel. Particular attention was drawn to the St. Bartholomew's Hospital pattern operation table with a new patent skull support, and to an antrum illuminator, an instrument for the injection method in the treatment of hæmorrhoids, and gynæcological and obstetrical instruments. Of interest also was the "Metalix" Hot Cathode X ray tubes shown by this firm, the general construction of which embodies a covering of lead in order to protect the operator.—DOWN BROS., LTD. (21 and 23, St. Thomas's-street, London), showed many forms of surgical instruments and appliances. —One of the features of the stall of MAYER AND PHELPS (Chiron House, 59–61, New Cavendish-street, London) was the Chiron Chloroform Inhaler which eliminates the possibility of pumping out liquid chloroform either by wrongful attachment of bellows or by overfilling, while there are no valves to get out of order. Instruments and apparatus in stainless steel for general and regional surgery were displayed, as well as aseptic hospital furniture.—SURGICAL MANUFACTURING CO., LTD. (83–85, Mortimer-street, London), exhibited instruments of all kinds for surgical use.—HOLBORN SURGICAL INSTRUMENT CO., LTD. (26, Thavies Inn, Holborn Circus, London), presented an attractive display of surgical instruments and called particular attention to French's Blood Aspiration Set and Needle, Blair Bell's Vulva Retractor, and Harrison's Urethroscope. May's Electric Ophthalmoscope was also shown.—MEDICAL SUPPLY ASSOCIATION, LTD. (167–185, Gray's Inn-road, London), had a large exhibit of ultra-violet radiation apparatus, X ray apparatus, and surgical instruments and hospital furniture.—BRITISH HANOVIA QUARTZ LAMP CO., LTD. (Slough, Bucks), showed several models of their well-known lamps for ultra-violet therapy which can be supplied for either direct or alternating current, as well as the Jesionek Quartz Lamp for the irradiation of several patients at the same time, and the Hanovia Sollux Lamps for hyperæmia therapy.—I. CALVETE, LTD. (11, Little St. Andrew-street, Charing Cross-road, London), exhibited electro-medical apparatus, including the Solart ultra-violet carbon-arc lamp, the Icalite infra-red ray therapy lamp, and the Everay high-frequency generators. Diathermy, ionic, galvanic, and faradic apparatus were also shown.—ELECTRICAL EQUIPMENT AND CARBON CO., LTD. (Bank Buildings, 109–111, New Oxford-street, London), showed many forms of Siemen's carbons for therapeutical purposes. Some 20 different brands of these carbons were exhibited including those cored with tungsten, thorium, or iron, particular attention being drawn to the absence of sputtering in the working of the latter. Much interest was manifested in the demonstrations showing the spectrum of the arc by means of a Beck spectroscope, a new model 10-amp. Westminster arc lamp being used.—BRUCE, GREEN AND CO., LTD. (14–18, Bloomsbury-street, London), makers of medical and electrical appliances and ophthalmic instruments for ophthalmic work, made a special feature of their combination set for the examination of eye or nose and throat with detachable sterilisable tray, and demonstrated an attachment by which any type of vaginal speculum may be illuminated. This little apparatus is easily detachable for sterilisation.

R. H. DENT (309, Oxford-street, London) showed "Ardente" Aids for the deaf, many of them being of ingenious design, unobtrusive in appearance, and possessing excellent tonal qualities. A special feature of this stand was the stethoscope for deaf practitioners which the firm state is the only one made.—GENERAL ACOUSTICS, LTD. (Acousticon House, 77, Wigmore-street, London), among a large number of appliances for the deaf, showed the "Shellacon" microphone which can be worn under the clothing and so be out of sight; a miniature ear-piece and a midget battery, the total weight being only a few ounces, completes a very useful appliance. A large and more powerful ear-piece is made for use in theatres and public halls.—W. H. PETTIFOR (11, Victoria-street, London) presented a wide range of electrical aids for the deaf, and ACOUSTIC SUPPLY CO., LTD. (3–4, Eden-street, London), also showed appliances for the deaf. —H. E. CURTIS AND SONS, LTD. (7, Mandeville-place, London), manufacturers and designers of abdominal belts, trusses, and elastic hosiery, showed their abdominal support for the treatment of ptosis, the protection of abdominal scar tissue during consolidation, for mobile or displaced kidney, and for varying forms of umbilical and ventral hernia as well as a colostomy support and improved trusses of various kinds.—DOMEN BELTS CO., LTD. (456, Strand, London), also showed many forms of belts designed on physiological and anatomical lines, including belts for pregnancy, accouchement and general support, gastroptosis, umbilical hernia, and floating kidney.

INHALING DRUG AND APPARATUS CO., LTD. (30, Grosvenor-place, London), made a special feature of the Apneu Spiess-Drager Drug Nebulising and Inhaling Apparatus, the diameter of the vapour particles measuring approximately from 5 to 10 μ. By the use of the apparatus aqueous or oil vapour may be inhaled separately and their flow and density can be regulated with great precision.—G. H. ZEAL, LTD. (75–77, St. John-street, Clerkenwell, London), showed many forms of useful clinical thermometers, and SHORT AND MASON, LTD. (Macdonald-road, Walthamstow, London), showed sphygmomanometers, clinical thermometers, recording thermometers, and the Tycos Barograph, which records the most minute changes of atmospheric pressure.—KODAK, LTD. (Kingsway, London), showed an interesting display of X ray materials and accessories, including Dupli-Tized X ray film, developing tanks, intensifying screens, and the Kodak X ray reduction camera. Dental X ray negative specimens illustrating the "Bite Wing" system for early detection of interproximal cavities and negatives were exhibited, as well as an X ray angle tilting board designed to provide cassette support at a definite angle for simplifying the positioning in extra oral radiography of the lower jaw, and to facilitate correct and uniform delineation of the frontal sinus and mastoids without tilting the tube.

FOOD AND MILK PRODUCTS.

Milk and milk products were admirably displayed by GLAXO (56, Osnaburgh-street, London), who also showed Ostelin, a physiologically tested preparation of the essential vitamin of cod-liver oil—vitamin D. Ostelin in glycerine, Ostelin with malt extract and

orange-juice, and Ostelin tablets as well as Ostelin cream containing Ostelin equivalent to 50 per cent. cod-liver oil were also shown.—WEST SURREY CENTRAL DAIRY CO. (Cow and Gate House, Guildford, Surrey), the manufacturers of Cow and Gate Milk Food, demonstrated the therapeutic value of Brestol, a humanised cream which contains the growth-promoting and antirachitic vitamin (cod-liver oil source) and the antiscorbutic vitamin (orange-juice source). Lacidac, a lactic acid milk powder, was another exhibit of this firm which drew much favourable comment.—TRUFOOD, LTD. (Lever House, Blackfriars, London), who specialise in the manufacture of pure milk products, showed their Trufood Full Cream for use from 9 months onwards, for nursing and expectant mothers and for invalids, and Secway, a pure, sweet whey powder.—HORLICK'S MALTED MILK CO., LTD. (Slough, Bucks), exhibited a full-cream milk combined and modified with soluble extracts of malted barley with a high vitamin content. A teat specially designed to use with the 2*s.* size of a malted milk bottle, thus converting it into a feeder, attracted much attention.—MEAD'S INFANT DIET MATERIALS (Brooks and Warburton, 40–42, Lexington-street, London). Recolac, a reconstructed milk food for infants; Casec, a corrective diet for green fermentative diarrhœas, wind and colic, and cœliac disease; Dextri-Maltose, for modifying cow's milk for infants as well as a modified lactic acid milk in dried form, and a standardised cod-liver oil.—THE MALTINE MANUFACTURING CO., LTD. (23, Longford-street, London), showed their products, including Malto-Yerbine, containing the active principle of Yerba Santa (*Eriodictyon californicum*) for the treatment of bronchial conditions.—BOVRIL, LTD. (148–166, Old-street, London), displayed the well-known preparations which can be used in combination with milk and with cod-liver oil.—VITALIA, LTD. (17A, Boniface-street, Westminster Bridge-road, London), showed their meat juice prepared by a cold process, thus retaining the natural vitamins and organic salts. This preparation contains 8 per cent. of hæmoglobin and is a rapidly acting tonic where indicated.—OXO, LTD. (Thames House, Queen-street-place, London), presented their meat juice, an invalid preparation which is produced by a special process which preserves the soluble proteids of the juice in their natural uncoagulated condition, thus providing a nourishing and strengthening food of high tonic quality, especially suitable when the appetite is feeble and solid foods cannot be assimilated. Included among the Oxo products were their well-known Hospital Oxo, Lemco, Beef Essence, and the "Oxoid" Endocrine Preparations for use in glandular therapy.—VIROL, LTD. (Hanger-lane, Ealing, London), showed Virol, a scientifically prepared food to meet the requirements of the growing age, together with Virol and Milk and Virolax, an emulsion of pure liquid paraffin.—VITMAR, LTD. (Callard's Vitamin Foods) (Southfields, London), called attention to their tonic food and to Cibrons, colloidal agar-agar with fruit juice for the treatment of constipation without drugs or paraffin.—ETAN LIQUEFIED FOOD (Agents: Dehez, Surbiton, Surrey, and Monument Buildings, London) showed their product consisting of the hydrolysates of animal albumins which is indicated in gastric disturbances, all forms of malnutrition, and in convalescence. The liquid is put up in bottles and is agreeable to the palate.—BRAND AND CO., LTD. (Mayfair Works, Vauxhall, London), exhibited Essences of Beef and Chicken, Meat Juice and Iron Tonic Food, as well as Liquid Peptone.—BATTLE CREEK FOOD CO., of which Coates and Cooper are the agents, demonstrated its system of biologic feeding, and exhibited Lacto Dextrin for changing the intestinal flora, Laxa, a laxative biscuit composed of agar-agar and cooked bran, Paramels, mineral oil in caramel form, and Food-Ferrin, a new iron food.—CADBURY BROS. (Bournville, Birmingham) showed their cocoa and chocolate.—J. E. AUSTIN AND CO., LTD. (St. James's Works, Cromwell-road, Kingston-on-Thames), showed sugarless jams and marmalade suitable for diabetes; the varieties include apricot, raspberry, green plum, red plum, and marmalade.

MISCELLANEOUS.

THE DENVER CHEMICAL MANUFACTURING CO. (London, E.) demonstrated their well-known Antiphlogistine, a hydroscopic antiseptic poultice for inflammatory and congestive conditions.—PASTILLES, LTD. (124, High-street, Shoreditch, London), showed the Lakerol Brand Bronchial Pastilles and other pastilles in great variety.—THE PINEOLEUM CO., INCORPORATED (Distributing Agents: Brooks and Warburton, 40–42, Lexington-street, London), exhibited this now well-known inhalant.—KOLYNOS, INCORPORATED (Chenies-street, London), showed their dental cream with a non-gritty content and antiseptic composition, Kolynos dental powder for artificial dentures, and Kolynos skin soap for toilet and nursery purposes.—KEEN, ROBINSON AND CO., LTD. (incorporated with J. and J. Colman, Ltd., London and Norwich), exhibited, in addition to many other preparations, Almata, a complete food for infants, invalids, and expectant and nursing mothers, put up in an ingenious air-tight tin which is opened by a special cutter contained in the lid. The lid also forms an air-tight covering after the tin is opened. The bath mustard made by this firm is now put up in a new packing, each packet containing sufficient to charge a full-sized bath.

JAEGER CO., LTD. (95, Milton-street, London), displayed a wide selection of pure wool underwear and outwear, rugs and footwear, as well as camel hair blankets. The advantages claimed for the wool clothing supplied by this firm is that it is a slow conductor, porous, and absorbent to moderate moisture.—SCHOLL MANUFACTURING CO. (Granville-square, London) had an interesting display of useful appliances for foot troubles.—GAS LIGHT AND COKE CO. (Horseferry-road, Westminster), in addition to demonstrating the advantages of gas-fires, showed how the contents of the dust-bin can be hygienically dealt with by means of a gas incinerator, the resulting ash forming a valuable fertiliser for the garden.—MEDICAL SICKNESS, ANNUITY AND LIFE ASSURANCE SOCIETY, LTD. (300, High Holborn, London), which is a mutual society of medical and dental practitioners, managed by members of the medical profession for the benefit of that profession, had attractive sickness and accident insurance and life assurance policies to explain to those interested, and set out the advantages of becoming a member of "Your Own Profession's Society."

SPAS AND WATERS.

Attractive displays were made by English spas—pictures, books, and pamphlets making vivid to the imagination the various treatments which these watering places afford and the places of interest in their vicinity. BATH emphasised the special treatments which are obtainable at this centre and called attention to the extensive new accommodation which has just been provided for the Plombiéres system of intestinal douching. The rebuilt Old Royal Baths were opened last month.—The BUXTON exhibit emphasised the advantages of its radio-active thermal waters, its peat baths, and electric treatment as well as its drinking cure from the spring which arises at St. Ann's Well where the water is drunk. This water can be obtained in bottles and siphons and makes a pleasant table water.—DROITWICH made prominent the analysis of its spring water which provides "a constant quantity of brine as clear as crystal," and "Wychia," a saline aperient and laxative water of which natural brine forms the basis.—The feature of the HARROGATE Spa is the system of training the staff at the bathing establishments who must pass an examination after two years' course of lectures and do 18 months' practical work before gaining the diplomas which all must hold. The waters are under the constant supervision of a permanent scientific officer.—It is announced that a complete geological survey of this spa is to be undertaken by Prof. Albert Gillagan, of Leeds University.

—TORQUAY, with its special treatments of hot sea water and seaweed baths, Dartmoor peat baths, and packs will shortly possess a magnificent sun lounge which will embody a vitaglass structure, 90 feet by 15 feet, fitted with the latest ultra-violet radiation apparatus. Its estimated cost is £3000.—INGRAM AND ROYLE, LTD. (Bangor Wharf, 45, Belvedere-road, London), who are importers and exporters of natural mineral waters, salts, and pastilles, presented a wide selection of waters, including those from three Vichy springs, and Evian-Cachat, Carlsbad, and Hunyadi Janos.

MEDICAL PUBLISHERS.

The following medical publishers showed a large assortment of books: ADLARD AND SON, LTD. (21, Hart-street, Bloomsbury-square, London, and Bartholomew Press, Dorking); WILLIAM HEINEMANN (MEDICAL BOOKS), LTD. (20, Bedford-street, London)—this firm also showed specimen tubes of vaccine lymph; BAILLIÈRE, TINDALL AND COX (7–8, Henrietta-street, London) who are agents for the Williams and Wilkins Co., of Baltimore; and H. K. LEWIS AND CO., LTD. (136 and 140, Gower-street, London), many inquiries being made regarding the medical and scientific circulating library of this latter firm.

A similar medical exhibition will be held in the Drill Hall, Burlington-street, Manchester, from Tuesday, Oct. 25th, to Friday, Oct. 28th, particulars of which can be obtained from the British and Colonial Druggist, Ltd., 194–200, Bishopsgate-street, E.C. 2.

THE MOTOR SHOW.

OLYMPIA, OCT. 16TH—22ND.

THE twenty-first annual motor show opened on Thursday, Oct. 13th, at Olympia. Three features distinguish the exhibition this year—incredibly low prices, the perfection of the covered bodies on the cheap cars, and the great increase in the number of small "sixes." The first is the result of ever-growing competition. The second is due to the development of the fabric saloon, a form of construction which originated in the aircraft industry. The body consists of a light frame of laminated wood, sometimes braced diagonally with wires, with a skin of leather or American cloth stretched over it. The frame is attached to the chassis on rubber buffers, and in some makes the seats are mounted separately and not connected with the body in any way. The result is that the body "gives" to the movements of the car and, since it has no weight to support, lasts a long time and is free from rattle. Its extreme lightness means a better performance and economy in running costs. Nevertheless, some buyers will always prefer metal panels, and the Morris, Citroën, and Austin cars show how good low-priced rigid bodies can be.

Cheaper Cars.

This year a dozen makers are showing saloon cars priced at under £200; two years ago there was only one. For those who do not want a permanent cover the same cars are available with two or four-seater bodies for correspondingly smaller sums. The Austin Seven is now down to £135, the Singer Junior two-seater to £140, the cheapest Morris and Clyno two-seaters to £152 10*s.* each, and the Jowett to £134. The Trojan can now be bought with a full saloon body for £170; the simplest model of this admirable car costs £125 only. Of last year's £100 cars only one has survived, the French three-cylinder air-cooled Lafitte. There are some very interesting newcomers under £200. The Standard Company are making another "Nine," the four-seater model of which is priced at £190. The Triumph Super-Seven tourer at £149 10*s.* and fabric saloon at £187 10*s.* will be a serious rival to the hitherto unique "Baby" Austin, if it is as good as every other Triumph model has been. An entirely new 9 h.p. Clyno is being shown at £145, with a four-seater fabric saloon at £160, and the other Clyno cars now have larger and differently shaped radiators and are improved in many ways.

Small "Sixes."

The doctor who goes to Olympia in search of a car of about £15 annual tax will find a range of choice fully ten times as wide and much more attractive than he would have found two years ago. The rise of this class has been phenomenal, and whereas in 1925 there was hardly a six-cylinder car of this size to be seen, now the "sixes" actually outnumber the "fours." He should be sure to see, for example, the Lea-Francis Six, costing, with the open five-seater body, £425; and the new Alvis Six at £595. Of the moderate priced American cars the most attractive are the Erskine (£17 tax) £325 saloon; the Essex Super-six (£18 tax) £245 saloon; and the Chrysler 21/60 at £385 for the saloon. The new Vauxhall 20/60 six-cylinder at £475 with a touring body, and the Armstrong-Siddeley 15 h.p. Six at the startling price of £400 with a fabric saloon are, however, splendid answers to the American challenge. The smallest of the "sixes" is the new Renault "Monasix," the tax on which is £13. With a four-seater body it costs only £279, and is the first low-priced "six" of this size on the market.

Among the most interesting newcomers to the largest class is the 30 h.p. 12-cylinder Daimler, a smaller edition of the 50 h.p. model which attracted so much attention last year; its chassis price is £1330. Bentley's are showing a 4½ litre four-cylinder car which costs £1295 with a touring body. German firms are exhibiting for the first time since the war, and the supercharged Mercédès 24/100 and 33/140 are fine specimens of the very fast and yet flexible touring cars at which these makers excel. Sunbeams are making two "straight eights," the chassis price of which is £1175 and £1375 respectively. Incidentally, the "straight eight" is not confined to the very expensive class, and examples of moderately priced cars with this type of engine are the 18 h.p. Beverley-Barnes (£675) saloon, the 17.8 h.p. Bugatti (£760) saloon, and the 21/60 Wolseley (£750) saloon.

The Final Choice.

Cars without four-wheel braking are now the exception rather than the rule, and semi-balloon tyres and shock absorbers are fitted even on the cheapest. Moreover, so reliable have engines become, and so well made is the coach-work, that the odds are two to one on the result of a blindfold choice being satisfactory. Nevertheless, the buyer should remember how important are small details. He cannot be certain that he is buying a car that will really content him unless he takes it out for a good trial run and satisfies himself that the springing is good over bad surfaces, that the mechanical noise is tolerable, that the controls, seats, and instruments are comfortably placed, that the doors are easy to open and pass through, and that the bodywork, especially on closed cars, does not rattle or admit weather or exhaust gas. How many buyers ask for a trial run at night to test the lighting apparatus? Yet for a doctor this is one of the most important parts of the car.

Finally, the visitor should remember that the best guide for a busy man is the special Show Number of one of the motor journals, such as the *Autocar*.

RECONSTRUCTION AT EDMONTON.—Proposals have been made for the reconstruction of the North Middlesex Hospital at a cost of £200,000.

SALARY OF CORONERS.—It was reported at a recent meeting of the Leeds Corporation Finance Committee that the Home Secretary had fixed the salary of the Leeds coroner at £1500 a year. The coroner had made application for a fixed salary of £1880 under the provisions of the Act of 1926. The Finance Committee had recommended that the salary should be £1350, and the matter had been referred to the Home Secretary, who, under the provisions of the Act, is empowered to fix the salary in cases where agreement cannot be reached locally.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

Relief of the Poor in the Free State.

IN March, 1925, the Minister for Local Government and Public Health appointed a Commission to inquire into the laws and administration relating to the relief of the sick and destitute poor, and this Commission, of which Dr. T. Hennessy, T.D., was the only medical member, has now issued its report, which fills a bulky volume (Eason and Son, Dublin, 2*s.* 6*d.*). In the terms of reference particular attention is directed towards the adequacy of schemes formulated under the Local Government (Temporary Provisions) Act, 1923; the existing laws and practice as regards home assistance; the law and administration affecting the relief of widows and their children, children without parents, unmarried mothers and their children, and deserted children; the provision in public institutions for mentally defective persons; the area of chargeability on local rates of the destitute poor. There was no special reference in the terms to any matters directly concerning health, and the Commission appears to have interpreted its functions widely in giving as much attention as it has to the condition of the Poor-law hospitals and to the Poor-law medical service. At the same time it has exercised some caution in not trespassing too far on the ground covered by the Committee of Inquiry on National Health Insurance and the Medical Services, which submitted its final report a few months ago.[1] The Commission in the course of its investigations has covered a great deal of ground, and has perhaps attempted too much. It has interpreted its instruction to study the working of the scheme adopted in pursuance of the Act of 1923 as a direction to consider in detail the schemes actually at work in the 26 counties. It is clear that such a survey is bound to be superficial, and the detailed advice founded on it will be of little use. The Commission could have occupied its time better by devoting itself to more general considerations than by going over the ground ordinarily covered by the reports of the inspectors of the Department of Local Government and Public Health.

The report begins with a brief historical statement of the Poor-laws in Ireland, and more particularly of the changes that have taken place in the Irish Free State since its establishment, and an attempt is made to assess the success or failure of these recent changes. It is suggested that the closing of the workhouses and the removal of restrictions or the granting of home assistance (outdoor relief) has in some counties operated prejudicially to the interests of the poor, while the saving in cost has been negligible. In the summary given in the report it is stated :—

"In the county homes we found the following classes, whether the schemes contemplated their admission or not—viz., aged and infirm of both sexes; lunatics, idiots, and imbeciles of both sexes; unmarried mothers and their children, in some cases married mothers and their children, and orphan and deserted children. In a number of the homes there were cases of advanced tubercular diseases and also cases of cancer. The county homes are not fit and proper places for the reception of the various classes we have found in them, and therefore, in so far as the schemes, either through omission to make provision for or through actual commission in bringing together these classes, have conduced to that state of affairs, they must on that ground, if on no other, be deemed inadequate and unsatisfactory. The classes that should not be retained in the county homes and for which other provisions will, therefore, have to be made are as follows: Unmarried mothers, married mothers, children, and mental defectives. Reserved even for the aged and infirm poor and chronic invalids, the county homes, with one or two exceptions, require much structural alteration and improvement before they can be considered as coming up to the standard of comfort required."

In regard to the county hospitals it is stated that—

"In some counties the institutional accommodation provided for the sick falls far short of what the county scheme contemplates. The centres chosen for the county hospitals are, as a rule, suitable, but the hospitals themselves are not, in some instances, up to a reasonable standard, nor is the accommodation sufficient, while in others the development is taking place on lines that are not consistent with the general policy of complete severance from ordinary poor relief. The county hospital should be an institution under one control in which both medical and surgical cases are treated."

The retention of tuberculous cases in the county homes is condemned, and boards should be required to make arrangements for their institutional care in neighbouring counties where this is desirable.

The Commission is in favour of a scheme of mothers' pensions, payable by the State.

In regard to the dispensaries of the Poor-law Medical Service the criticism is made that the accommodation and equipment provided in some of them is unsuitable and the standard of cleanliness often very low. The tone of some of the references to the work of the dispensary medical officers appears to show an unexpected hostility, and criticisms are made for which no evidence beyond mere suspicion is forthcoming. For example, we find, without any reference to evidence, the statement :—

"We are aware that there exists among many of the small landholders of the west, some of whom on even a very restricted definition of poor person would be entitled to free medical attendance, a belief that they would not get proper attendance on a ticket, and this no doubt operates against the full use being made of the dispensary service as they endeavour, no matter how small their resources, to scrape together a fee for the doctor."

Again, without any reference to any suggestion from witnesses that medical officers are habitually or frequently lax in their duties, it is said: "The poor as a whole are very slow to make complaints; but because no complaints are made it does not follow that there are no grounds for complaint." It is surely going beyond the function of a Commission, in the absence of evidence, to evolve from their own minds the existence of abuses, in order to suggest remedies. It is no matter for wonder that Dr. Hennessy has thought it necessary, in a note appended to the report, to express his dissent from the paragraphs dealing with the dispensary service.

In discussing problems connected with unmarried mothers the Commission recommends that the age of consent should be raised to 18 if not to 19 years, that the law in regard to sexual offences should operate evenly against both sexes; and that all private maternity homes should be licensed annually.

The most important reform advised by the Commission is in regard to local administration. The report states :—

"While recognising that it is possible for a board of health under a capable and business-like chairman and with the help of committees to work the administrative machine efficiently, we are inclined to the view that in actual practice the Boards are not able to exercise the supervision which their institutions, officers, and services require. We are unable to formulate any plan which, by merely altering the constitution or methods of procedure of the Board, would be calculated to lead to more efficient administration.

"The alternative we recommend is the abolition of the Board of Health and the assumption by the County Council itself of the control of poor relief working through a paid official whom they would place in entire charge of the Poor-law services of the county in the same manner as the general manager of a company under the control of a board of directors."

Under this scheme the Commission believes it would be possible and desirable for the Central Authority to allow the county councils a very much freer hand than is allowed to the Board of Health.

Irish Free State Medical Council.

The following have been nominated to act on the Medical Registration Council of the Irish Free State under the Medical Practitioners Act, 1927 :—

By the Executive Council: Dr. H. F. Moore and Dr. J. N. Meenan.
By the Royal College of Surgeons: Sir Arthur Chance.
By the Royal College of Physicians: Dr. T. G. Moorhead.
By the Apothecaries Hall: Dr. E. Magennis.
By the Trinity College, Dublin: Prof. A. F. Dixon.

[1] See THE LANCET, July 23rd, p. 198.

By the University College, Dublin: Dr. D. J. Coffey.
By the Medical Practitioners of the Free State: Mr. Maurice Hayes and Dr. R. J. Rowlette.
The Council is to consist of 11 members, who will hold office for five years. The University Colleges of Cork and Galway have not yet nominated their representatives.

It will be noticed that there is a considerable overlapping as regards personnel between the Irish Council and the General Council, the following being members of both bodies: Sir Arthur Chance, Dr. Magennis, Prof. Dixon, and Dr. Coffey.

Royal College of Physicians of Ireland.

Dr. W. A. Winter was, on Oct. 7th, selected as candidate for the Presidency of the College, subject to election on St. Luke's Day. Dr. Winter is a graduate of Dublin University, and has been a Fellow of the College since 1901. He has served as examiner on several occasions, and has been censor and vice-president of the College. He is one of the physicians to Dr. Steevens' Hospital.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Duodenal Tube.

Dr. Pasteur Vallery-Radot and Dr. Blamoutier have studied in 22 cases of typical migraine the effect of treatment by the duodenal tube with drainage of the gall-bladder by means of 33 per cent. magnesium sulphate, according to the Melzer-Lyon technique. In seven of these cases the results were excellent. The usual practice was to pass the tube once a week for six or seven weeks, and some of the patients had no further attacks after the end of such a course. In other cases the migraine continued for a time but yielded to further treatment at regular or irregular intervals. The method, they say, should be tried for patients who have frequent and copious vomiting, and for those who have tenderness over the gall-bladder on palpation; for it seems beyond question that migraine sometimes has its origin in biliary stasis. And in such cases regular drainage of bile into the intestine is a rational procedure.

The Enlarged Prostate.

Treatment of enlarged prostate by X rays cannot take the place of surgical intervention and finds its proper rôle as an auxiliary. Nevertheless, as Guilbert points out in the *Concours Médical*, it is of considerable efficacy and sometimes makes it possible to defer operation for long periods or even permanently. It is, he says, harmless, and may usefully be employed where patients are old and feeble. No form of treatment is satisfactory if it leaves the patient unable to profit by other measures in case of failure, and Guilbert advises that where operation may have to be done later the dosage and the period of irradiation should be strictly limited. Of 60 cases that he treated with X rays, four were subsequently operated on. Before irradiation is begun, it is essential to make sure that the wall of the bladder is intact and to get rid of sepsis by lavage and vaccines, as X rays generally provoke a sharp bout of cystitis if the bladder is infected. When the organ is already irritable it is well to be cautious in starting the treatment and the sessions should be at longish intervals.

Congress of Public Health.

The next annual international congress of hygiene will coincide this year with the 50 years' celebration of the foundation of the Société de Médecine Publique and will be held at Paris from Oct. 25th to 28th. The subjects of discussion are the relation of social insurance to the public health, the factors causing a world recrudescence of small-pox and the means of controlling them, and the hygiene of training camps. The chief contributions announced will be those of Prof. Madsen, President of the Health Committee of the League of Nations; Mr. G. H. F. Nuttall, F.R.S., professor of parasitology in the University of Cambridge; and Prof. Ottolenghi, of Bologna University. There will be an exhibition of hygiene (strictly technical) at the Pasteur Institute. Further information may be had from Dr. Dujarric de la Rivière, at the Institute, 26, rue Dutot, Paris.

Buerger's Disease.

Is thrombo-angiitis obliterans a separate disease? According to Buerger it is special, and even exclusive, to the Jews, being found in young subjects, chiefly males. Although unrelated to syphilis, it originates, in his view, in an infection which sets up thrombosis and afterwards a secondary sclerosis in the vessels. The personal observations of Guillaume, recently reported to the Société Médicale des Hôpitaux, suggest that Buerger's disease is not a clinical entity at all but a juvenile form of obliterative arteritis. The supposed anatomical, ætiological, and clinical characteristics do not appear, he says, with absolute regularity.

During the recent visit of the American Legion to Paris the emergency medical service organised by the French and American Red Cross cared for some 200 cases of minor injuries, colds, fatigue, and exhaustion, and referred several graver cases to suitable hospitals.

The Lyons Court of Appeal has decided that surgeons are not responsible for faults committed by midwives working under their direction.

The death is announced of Dr. L. C. A. Prenaut, professor of histology in the University of Paris, and one of the best-known histologists in France. He was born at Lyons in 1861.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

The Law against Venereal Disease.

THE new legislation described some time ago in THE LANCET [1] has now come into force, and the authorities are engaged in putting its provisions into practice. As there is no precedent for the system it is difficult to predict how it will work and what will be the results. Since Oct. 1st the work of the police in registering and examining prostitutes has ceased and the task of prevention and cure is now entrusted to special municipal officers. Local authorities have to set up boards of which a specialist in venereal diseases will be a member; the duty of these boards will be to require certificates of the state of health of all persons—male or female—who are suspected of suffering from and spreading venereal disease, and they will have to order a compulsory examination of any such person who does not voluntarily produce the certificate demanded. They also have to provide for the attendance of the patients and if necessary for their isolation in hospital, and to receive information concerning infections and notifications from medical men if patients discontinue treatment before they are cured. In a circular letter to the local authorities the Minister of Public Health insists that much tact should be used to avoid annoyance of the public. For instance, letters to patients must be sent in an envelope without the address of the sender, so that other people cannot ascertain that the letter comes from the health authority. In Berlin the work was inaugurated at a meeting in the town hall, where speeches were delivered by the directors of the Government Health Office and of the Municipal Health Office, and by representatives of the medical profession and of the sick-clubs. The Municipal Health Office will arrange public lectures at 50 different places in Berlin where medical men will invite the public to take part in the campaign against venereal disease.

Overcrowding of the Profession.

The Association of Medical Practitioners (the Ärzte-Vereinsbund) and the affiliated medical union,

[1] THE LANCET, 1927, i., 565.

the Hartmann-Bund, held their annual meeting in Würzburg recently, when the first discussion was devoted to the present position of the younger members of the medical profession. By a Government order under the Emergency Act of 1923, medical men are not admitted to club practice until three years after they have qualified, and the result is that about 2000 of them have hardly any work. The regulation was made as a result of overcrowding in the profession, and in order to limit the number of entrants several speakers advocated that the period of medical study should be lengthened and that examinations should be made more severe. Against this it was argued that the extension of medical study would make it more expensive and thus create a danger of its becoming the monopoly of the well-to-do. Some delegates considered that a central medical register should be kept from which younger medical men should be selected and distributed over the country to places where there is need for medical aid. At present only about 1200 medical men are admitted to club practice annually, whilst about 2000 leave their assistantships in the hope of being able to establish a practice. The Association almost unanimously adopted a motion that the three years' waiting period should be abolished. The relation between the boards of social aid and the medical practitioners was then discussed and a motion adopted that the medical officers of these boards should abstain from interfering with private practice.

Compulsory Inoculation against Diphtheria.

At a meeting of the German Society for School Hygiene lately held in Saarbrücken Prof. Klotz, of Lubeck, advocated compulsory inoculation against diphtheria in the first year of life. Vaccination against small-pox, he suggested, should not be performed, as hitherto required by law, during the first year, but should be postponed until the child enters school. Every child going to school ought to produce a certificate that it had been inoculated against diphtheria and small-pox. If Prof. Klotz's proposal were to be adopted the present law should, of course, be completely altered, and certainly the proposed change would revive the old campaign against compulsory vaccination. The society was of opinion that infectious diseases would be reduced if the number of pupils in a single class-room was not allowed to exceed 30.

The Study of Rheumatism.

A society for study of rheumatism has been founded in Berlin to take part and to help the international combat against that disease organised by the International Society of Medical Hydrology. The former president of the Prussian Health Department is chairman of the committee, which includes medical men engaged in the study of climatology and balneology, and representatives of health resorts and of sick-clubs. Prof. August Bier, Prof. Wilhelm His, and Prof. Alfred Goldscheider, of Berlin, and Prof. Friedrich Müller, of Munich, have been elected honorary members.

The Health Committee of the League of Nations now visiting Germany includes 28 medical officers from 22 different countries. Their programme has included inspection of numerous hospitals and other institutions in Berlin, and they will go to Hamburg, Essen, Düsseldorf, Halle, Dresden, Chemnitz, Leipzig, Kissingen, Nürnberg, and Munich before returning to Geneva.

The German Society for Industrial Hygiene has formed a committee to investigate the relation which exists between the constitution of the industrial worker and his fitness for work. Special attention will be paid to internal secretion and heredity. The committee, whose chairman is Dr. Krohne, head of the Prussian Health Department, invites those who intend to do work in these fields to apply to the committee, which is prepared to give financial assistance under certain circumstances.

Public Health Services.

REPORTS OF SCHOOL MEDICAL OFFICERS

Name of district.	No. on roll.	Av. elem. school attendance.	No. of routine children examined.	No. of special examinations and re-inspections.	Percentage of children found on routine examination requiring treatment.*
County of Cambridge ..	9819	8889	3227	6193	9·1
Northampton ..	—†	—†	3589	7025	17·1
Soke of Peterborough C.C.	—†	1405	494	595	—†
Ramsgate ..	4432	4000	1350	1258	23·25

* Excluding uncleanliness and dental defects.
—† Not given.

County of Cambridge.

Dr. F. Robinson, M.O.H. and S.M.O., states there ha been an increase of 627 in the number of routin inspections during the year. In this area, as in man others, nutrition has considerably improved sinc 1912, though the rise in the years during an immediately after the war has not been fully mai tained. The assistant medical officer, Dr. Jess Gellatly, has traced in a local area a close relatio between the nutrition of the children and speci economic conditions. Efforts are made to mainta a high general standard by the provision of scho meals for the small charge of 1s. a week; this pr vision is made increasingly necessary by regroupi of schools which causes children to travel long distanc from their homes. Specimen menus indicate excelle dietaries and accounts show that the schemes ar in spite of free meals to necessitous cases, nearly se supporting. Less complete but useful alternativ or adjuncts are the supply of cocoa and the heati or cooking of food brought by the children. F cases of real subnormality oil and malt is provide and Dr. Robinson says that the very satisfactory resu it gives are quite out of proportion to the small su of £80 per annum which is expended. It is, as he sa curious to note that even in so simple and famili a matter as the giving of cod-liver oil, opposition shown by some parents, who regard such assistan as an affront or permit the likes and dislikes of t children to prevail just as they do when den treatment is recommended. On the latter subj the school dentist, Mr. Evered, reports that about or third of those requiring attention refuse treatme He thinks that the chief obstacles are still the unreasc ing ignorance of the parents and their evasion responsibility by leaving the decision to the chi During the winter lectures have been given and fil shown to mothers at some maternity centres a women's institutes on the care of children's tee The dental work of the county is extensive, childr between 5 and 14 years of age being dealt with, a in the smaller schools the younger children also.

Figures for cleanliness show little recent alterati though there has been a substantial improvem since the early days of school medical inspecti The standard will probably rise with betterment housing. Of uncleanly bodies, Dr. Robinson poi out that the better the facilities for washing in the schools the greater is the importance wh the children attach to exhortations on cleanlin He gives examples of slow progress in improv school sanitation, which are very pertinent. Th are no special schools or orthopædic scheme for t county, but some use is made of facilities in the to of Cambridge and elsewhere.

Northampton C.B.

Dr. Stephen Rowland, M.O.H., S.M.O., and ch tuberculosis officer, only took over the post a

December after the death of his precedessor, Dr. J. D. McCrindle, and cannot give an exhaustive account of the work done under the former régime.

It has been found impossible for one medical officer to carry out all the inspections required by the Board of Education and arrangements are being made to provide help. The detailed record of school work by Dr. J. H. Mason mentions that routine inspections are still separated by much longer intervals than they should be. An increase of staff should have several good results; for instance, it will be possible for medical officers to coöperate in the work of school camps as has unfortunately been impossible this year. It is a regrettable fact that a certain number of children are kept out of school for long periods by neglectful parents who extract from harassed practitioners certificates of unfitness for school for many weeks at a time, and thus protect themselves from the attendance officers, while the children are allowed to run the streets or are even used as drudges at home. Dr. Mason thinks that the majority of these children could be promptly readmitted to school if they were examined by a tactful S.M.O. who explained matters to the parents and referred them back to their own doctor for his permission and agreement that the child should return to school. Another difficulty in Northampton is the lack of an open-air school, for sometimes the practitioner, while not quite certain that a child is fit for an ordinary elementary school, would be in hearty agreement with his colleague that attendance at an open-air school is desirable. Particularly important is the case of the "pre-tuberculous" child, who is kept out of school for long periods on medical certificates of anæmia and debility, thus missing much valuable education and the real chance of permanent restoration to health, which he could get at a properly constituted open-air school, where he would have a special curriculum, extra rest, and appropriate feeding. This matter, Dr. Rowland says, "has received special consideration and it has been decided as impracticable at the present time and until improved financial possibilities come into existence further suggestions will have to be withheld." Other authorities have seen that in such questions delay is really extravagance.

In one direction the borough has shown more foresight. Although salvage is nothing like so swift and obvious with the mentally defective, yet the record of the ex-pupils of the special mentally defective school shows that, excluding those who have died or left the town, about half are in more or less satisfactory employment. It is noted that in times of full employment a high percentage are wage-earners, but many are unable to stand the constant strain of regular work. The wages earned during the year have varied from 10*s.* to 30*s.* a week and where consideration is shown by employers a good report is usually given. There can be no doubt that without the special training the number of those who support themselves would have been much lower.

The dentist's report shows much good work done, but the fact that with permanent teeth the number of extractions was two-thirds the number of the fillings, and the large proportion of "casuals" among the treated, suggests that the staff is too small.

Soke of Peterborough C.C.

Dr. Christopher Rolleston reports all-round improvement during the year in the well-being of the children and the hygienic arrangements of the schools. The response of parents to the increased medical supervision is encouraging; 75 per cent. of the parents were present at medical inspections and the new scheme in connexion with the Manfield Orthopædic Hospital at Northampton has had immediate success, all the children recommended for treatment having accepted it. Advantage has also been taken of the extended facilities for ophthalmic treatment, and every child requiring glasses has obtained them. Of those recommended for surgical treatment of tonsils and adenoids, 53 per cent. have had the operation. Cleanliness and freedom from the "dirt" diseases are also on a high standard, whilst the percentage of ill-nourished children has fallen from 8·4 in 1920 to 4 in 1926. The new dental facilities are not yet being fully used, and Dr. Rolleston hopes that lectures on dental hygiene will be included in the proposed course of lectures by the Soke of Peterborough Insurance Committee.

Investigating the circumstances of the children requiring operative treatment for tonsils and adenoids, Dr. Rolleston found the percentages of breast- and bottle-fed children was much the same as in children without these abnormalities, but dental caries, deafness, and aural defects were much commoner among those with tonsillar defects, 14·6 per cent. of whom showed malnutrition, as against 2·6 per cent. of normal controls. Rheumatic manifestations and heart disease appear to be relatively rare in this neighbourhood as only one case of organic heart disease is reported. The school nurse receives a justifiably generous tribute from Dr. Rolleston, for in addition to 4766 routine examinations for cleanliness she paid home visits to children recommended for treatment and to all cases of infectious diseases, besides helping at medical and dental clinics, carrying on the nursing treatment of minor ailments and conducting children to hospital.

Ramsgate.

To an outsider visualising Ramsgate it comes as a surprise to find the multifarious health duties are performed by one medical officer, Dr. W. J. Bannister, M.O.H. and S.M.O. Besides his public health and school medical work he is bacteriologist and port sanitary officer. His school report suggests efficient work and includes a thorough sanitary survey of all the schools in the borough; although he does not lay stress on defective conditions, yet he makes their existence sufficiently evident to prepare us for the final remark that one of the schools has been condemned by the Board of Education and will have to be replaced. There is a natural tendency for a medical officer with a wide range of duties to have less time for and perhaps to attach less importance to individual special subjects. Thus whilst an aural surgeon might say that the majority of chronic affections of the nose and throat need operative treatment, Dr. Bannister insists on this in only 11 out of 119 cases, deeming the remainder adequately dealt with by dental treatment with oral and nasal hygiene. Although the percentage of children suffering from the ordinary defects found at medical inspections is fully up to the average for the country as a whole, the number of exceptional children found—i.e., the blind, deaf, and mentally defective—is very low. Associated with this finding, whether as cause or effect, must be taken the fact that "there are no special schools in or near the borough." Of physically defective children, and especially of the delicate children, a good many have been noted, so that it is obvious that "a definite need exists for a school in which certain children could be educated throughout the year under open-air conditions." Dr. Bannister states that this provision will have to be postponed on account of its cost, but suggests that in the new school a special class should be provided for open-air education.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED OCT. 1ST, 1927.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 122 (last week 125; it may be noted in passing that the number of cases is stabilising itself); scarlet fever, 2028; diphtheria, 1094; enteric fever, 86; pneumonia, 612; puerperal fever, 40; puerperal pyrexia, 106; cerebro-spinal fever, 7; acute polio-myelitis, 26; acute polio-encephalitis, 3; encephalitis lethargica, 20; continued fever, 1; dysentery, 111 (last week 1); ophthalmia neonatorum, 131. No case of cholera, plague, or typhus fever was notified during the week. Of the 29 cases of combined poliomyelitis and polio-encephalitis 7 (last week 14) were notified

from Kingston-upon-Hull and 6 from the West Riding of Yorkshire. The incidence of encephalitis lethargica is still low, but does not approach last week's extraordinarily low figure (12). Of the cases of dysentery, of which 110 more cases were notified last week than the preceding, 1 was reported from the county of Essex (West Ham C.B.), 4 from the county of Lancaster (Liverpool 1, Salford 1, Clitheroe 2), 1 from the county of Denbigh, and 105 from the county of Stafford (18 of these from Stoke-on-Trent C.B., and 87 from the urban district of Kidsgrove).

We understand that the Kidsgrove and Stoke-on-Trent outbreak, at first reported as dysentery, was probably a milk-borne epidemic of food poisoning due to *Bacillus aertrycke* (Mutton). The means by which this organism gained access to the milk has not yet been ascertained, but bacteriological and other inquiries are proceeding. There were over 100 cases and two deaths, but fortunately the outbreak now appears to be at an end.

Correspondence.

"Audi alteram partem."

DRAINAGE OF A PELVIC ABSCESS PER RECTUM.

To the Editor of THE LANCET.

SIR,—I can support Mr. Hamilton Bailey's advocacy of rectal drainage in pelvic abscess, having practised it for years. I learned it from F. T. Paul, who laid down a very useful certain indication for its use. It is true it applies only to a late case, but if the condition is found—and I have known Paul examine a case rectally every day for a week until it was found—it is absolutely safe to open the abscess into the rectum. The condition is a hard board-like swelling above and in front of the rectum, with a soft spot in the middle. Only if this condition is present can one be absolutely certain of not opening coils of small intestine.

I am, Sir, yours faithfully,

Liverpool, Oct. 8th, 1927. FRANK JEANS.

MISLEADING QUALIFICATIONS.

To the Editor of THE LANCET.

SIR,—Your correspondent, "Ethics," raises the question of whether anyone is entitled legally or ethically to designate himself F.R.C.S. without specifying the Royal College of Surgeons to which he belongs.

It is no more unethical to use the short term than it is for anyone possessing the doctorate of a university to use the term M.D. without stating the name of the university where he obtained his degree. If it is unethical to use the abbreviation F.R.C.S., then the Fellows of the Royal College of Surgeons of England are by far the greatest sinners, as it is not usual for them to sign themselves F.R.C.S. Eng. on every occasion.

Your correspondent's grievance seems to be that someone on the staff of a cottage hospital outside London who has a surgical Fellowship "has gained much public esteem." If "Ethics" realises the severity of the examinations of any of the British colleges and the high surgical attainment necessary to obtain their Fellowship, then he should be willing to accede all the esteem such an attainment deserves. Perhaps he thinks only Fellows of the Royal College of Surgeons of England are deserving of esteem as is hinted in the last clause of his letter.

I am, Sir, yours faithfully,

Oct. 10th, 1927. F.R.C.S.

THE CUTI-DIAGNOSIS OF SCARLET FEVER

To the Editor of THE LANCET.

SIR,—In the Medical Annual, 1927, appear o successive pages two articles describing recent wor on scarlet fever and the Dick test. In the first these, signed by Dr. J. D. Rolleston, one read (p. 442) :—

"W. A. Brown, whose observations on the Dick test we carried out under the reviewer's observation, confirms t value of the Dick test as an index of susceptibility to scarl fever, and maintains that it is a valuable aid to diagnos a strongly positive skin reaction in the first 48 hours of scarlatiniform eruption being against the diagnosis scarlet fever."

Turning to the second article one finds the te described; the left arm is chosen for the purpos and the writer (Dr. J. Priestley) proceeds :—

"The reaction in the left arm may be (1) positiv (2) negative, (3) positive and pseudo, (4) negative a pseudo—the positive reaction coming on in 4 to 12 hou and lasting only 24 to 48 hours, and without subseque straining or desquamation. A definite flush (about half inch in diameter or larger) is to be regarded as a positi reaction. Of persons suffering from definite scarlet fev 80 per cent. give a positive result to the test in the ea part of the attack, the reason for the absence of reacti in the remaining 20 per cent. being at present unexplainabl

One feels that there is more to explain than mere 20 per cent., and I have written this letter confidence that the explanation will be forthcomi but for my part I came out by the same door as I went.

I enclose my card, and am, Sir,

Yours faithfully,

OBSCURISSIMUS.

*** On referring to Dr. Brown's original arti it will be seen that with toxin of 1/1000 streng all of seven cases of early scarlet fever gave a positi reaction. It was with the high dilution of 1/60 that the small ratio of positive results was obtain There is wide agreement that with a selected streng of toxin a positive reaction is given in 70 to 85 cent. of cases of early scarlet fever. Dr. Rollest admits this, but writes that, in his experience, t reaction is not *strongly* positive, and he agrees w Dr. Brown in regarding a strongly positive reaction against the diagnosis of scarlet fever.—ED. L.

INCOME-TAX ASSESSMENTS.

To the Editor of THE LANCET.

SIR,—It would be well to remind your readers the importance of giving immediate attention to notices of assessment which are now being iss with reference to 1927–28.

Twenty-one days is allowed in which to app the period counting from the date of the notice not from the date of receipt. Unless notice of ob tion is given to the inspector in writing within period, and the ground of the objection is stat it may be found at a later date that the collec can legally demand payment of income-tax wh might have been saved by taking the appropri action now.

Every notice of assessment should be carefu examined for possible errors in the amount asses or in the allowances and the calculation of t Reliefs which are likely to be missed are those gran to persons over the age of 65, margin relief on assurance premiums, married allowance where marriage took place after April 5th, 1927, and o somewhat obscure allowances.

I am, Sir, yours faithfully,

W. R. FAIRBROTHE

Income-tax Specialist

67–68, Cheapside, London, E.C., Oct. 10th, 1927.

THE LATE PROF. ADRIAN STOKES.

To the Editor of THE LANCET.

SIR,—It was in September, 1914, following the attle of the Marne, that I met Adrian Stokes at a lace called Fère-en-Tardennois, a small town some en miles south of the Aisne. Stokes was riding a otor-cycle with side-car when he asked me to tell im where he could get engine trouble seen to—this was able to do. Having been through all the rough-nd-tumble with the old B.E.F. from Mons to the arne I hoped, as a reward for my assistance, that tokes might produce from his car cigarettes, tobacco , equally acceptable, a cake of soap. But my int as to the possible contents of his car including, r me, then, such luxuries, resulted in the discovery what I believe must have been the first mobile boratory on service with the B.E.F., for the side-car ntained nothing but laboratory equipment. At ch a time and place, during the hot pursuit of a treating enemy, to find, amongst the pell-mell of ttle almost, a "unit" of this description made e inclined to agree with a Frenchman to whom I sclosed Stokes's objective that "*il est bien toqué type la.*"

In October, 1914, I met Major S. D. Rowland at . Omer, and eventually saw his motor wagon boratory parked in the grounds of the College of . Joseph in that town. Later still I joined, from up country," for duty with No. 7 General Hospital, E.F., as the Belgian typhoid hospital had been designated, but Stokes was no longer doing duty ere. I merely write this letter because I believe it as Stokes who initiated the motor laboratory rvice of the B.E.F. with his motor-cycle and side-r in September, 1914, whoever conceived the idea such a service or launched it later.

I am, Sir, yours faithfully,

Oct. 10th, 1927. J. H. P. G.

The Services.

ROYAL ARMY MEDICAL CORPS.

Maj. P. Dwyer to be Lt.-Col. to complete estabt.
Capt. H. H. R. Bayley to be temp. Capt., and temporarily nquishes the rank of Capt.

ARMY RESERVE OF OFFICERS.

t.-Col. E. F. Q. L'Estrange, having attained the age it of liability to recall, ceases to belong to the Res. of Off.

TERRITORIAL ARMY.

ol. F. H. Westmacott, K.H.S., having attained the age it, is ret. on completion of his tenure of appt. as A.D.M.S. d (E. Lan.) Div., and retains his rank with permission wear the prescribed uniform.
ol. T. B. Wolstenholme to be A.D.M.S. 42nd (E. Lan.) Div.
lygiene Companies.—Lt. D. W. E. Burridge to be Capt.
t. C. W. Healey to be Capt.
t. A. T. H. Marsden, from R.A., T.A., to be Lt.
t. G. Morrison, late Capt., Ind. Army, Res. of Off., to be Lt.

ROYAL AIR FORCE.

lying Officer R. J. K. Chattey is promoted to the rank of Flight Lt.
light Lt. F. W. G. Smith is transferred to the Reserve, ss D.II.

INDIAN MEDICAL SERVICE.

Majs. D. Coutts, R. Knowles, R. B. S. Sewell, J. B. afin, W. J. Simpson, F. Stevenson, S. H. Middleton-t, and R. S. Townsend to be Lt.-Cols.
ts. G. P. F. Bowers, S. C. H. Worseldine, and Monawar n Afridi to be Capts.
emp. Capt. Sris Chandra Ray relinquishes his temp. mn.
he undermentioned officers retire: Col. A. N. Fleming Lt.-Col. G. J. G. Young.
r. S. S. Sokhey, Dr. B. P. B. Naidu, and Maj. Covell have been appointed to the Medical Research artment. Maj. H. H. Khan, whose services have been ed temporarily at the disposal of the Government, tral Provinces, Jail Department, has been appointed ttached officer, Central Jail, Jubbulpore. Lt.-Col. G. W. ilton has been appointed a member of the Bengal islative Council.

Obituary.

HENRY BRUNTON ANGUS, M.S. DURH., F.R.C.S. ENG.

Mr. H. B. Angus, Emeritus Professor of Surgery in the University of Durham, who died on Oct. 4th, was the son of James Ackworth Angus, of Newcastle-upon-Tyne, who was himself devoted to surgery in his younger days. He was born in 1867 and educated at the Royal Grammar School in his native city and at the Medical School of the University of Durham, then situated in Orchard-street, Newcastle-upon-Tyne. Subsequently he took a course at St. Bartholomew's Hospital, and he often spoke of the great value of the time he spent in London. On graduation in 1890 he was appointed house surgeon to the late Mr. G. E. Williamson, and afterwards at the Southport Infirmary and Dispensary. Returning to Newcastle, he became one of the resident medical officers to the dispensary in Nelson-street, and it was while serving there that he may be said to have begun his surgical career. Examinations were anathema to him, but he was always a determined plodder, and in 1900 he took the M.S. degree in his own university and in 1902 became F.R.C.S.Eng. In 1896 he was appointed assistant surgeon to the Royal Infirmary in Newcastle, and after serving a fruitful ten years in this capacity with the late George Halliburton Hume, to whom he was a devoted lieutenant, he was appointed full surgeon in 1905, and only resigned in April of this year for reasons of health, being then appointed consulting surgeon. In 1909 he was made lecturer in surgery in the University of Durham, and in 1921 succeeded to the chair on the retirement of Prof. Rutherford Morison. Only in July of this year he was made Emeritus Professor, when he finally decided that he would have to relinquish his teaching duties. Throughout the war he served on the staff of the 1st Northern General Hospital with the rank of lieutenant-colonel, and subsequently he was on the staff of the Pensions Hospital.

PROF. H. B. ANGUS.

For the following account of Prof. Angus we are indebted to Prof. Grey Turner: "When I first came to know 'Harry' Angus—a term of endearment by which he was known throughout his professional life—he was senior resident at the Newcastle Dispensary, and in that capacity he did a good deal of surgery in the homes of the poor, following a tradition which had been set by his predecessor in office. Soon afterwards he was appointed assistant surgeon to the infirmary, and I well remember attending his out-patient department. He was very keen and interested in problems of diagnosis, and I can never forget the impression which he made by the way in which he discussed the problems presented with members of his class, treating us like colleagues rather than students. . . .

"When he got charge of wards he devoted very considerable attention to injuries and especially fractures and to industrial accidents, for his experience of compensation cases had taught him the great economic importance of the careful treatment of this class of case. He had quite a bent for plastic and reconstructive surgery, and this found an ample field in his war work and after. Angus was always keen

on the records, and in his earlier days at the hospital he very often wrote the notes himself, as many of the old case-books bear witness. His ward teaching was simple and direct, and he encouraged men to concentrate on those subjects that fitted them best for their life's work. For student purposes he would never allow himself to be tempted to deal with rare cases or abstruse problems, as he considered that their hospital time was only too short for learning the essentials. He always kept up his interest in anatomy and he hammered in the importance of a good regional knowledge of this fundamental subject. As an examiner he was patient and considerate and scrupulously fair, but though very anxious to give every student a full opportunity of demonstrating his knowledge, he realised the responsibilities of his office and did not allow himself to be swayed by sentimental or other considerations, and I have often heard him say that it was an unkindness to an improperly prepared candidate to allow him to get through. When the X ray department was first started in the old infirmary Angus had charge, and there must be many who remember that little dark room at the end of the Ravensworth Ward, where he groped about in more senses than one, endeavouring to master the technique of radiography and to discover the secrets of its successful application. He never published much, but his papers were all thoroughly practical and without unnecessary padding.

"In the medical school and the infirmary he did a liberal share of committee work. His opinion was always welcomed, for it was sure to be entirely disinterested and quite often he saw things from an angle which had escaped the rest of us. He was one of those men who could be easily led but never driven, and he could be particularly difficult when he imagined that some wrong was being done or that the dignity of the profession was being slighted. In his earlier days he was an athlete, and all through life he recognised the great value of healthy sport and always encouraged the sporting functions in connexion with the College. In later years he became especially devoted to fishing, but he was also a good shot.

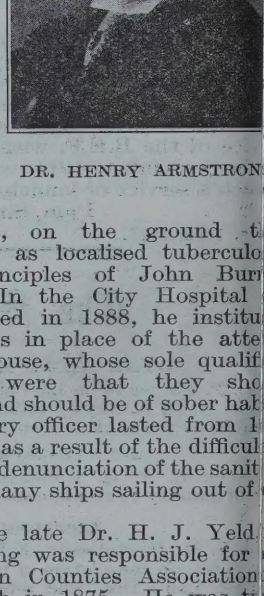
"I cannot imagine Angus ever having an enemy. He was always generous and open-hearted and never allowed any small service to go unrequited. He was open-minded in every way, and though conservative in his methods he was always willing to be convinced of some improvement; but he had to be satisfied that the improvement was to be for the advantage of the patient before he would make any change in his technique. It was characteristic of him that he carried out his allotted task to the very best of his ability, and whatever he undertook he did as well as he possibly could. In everything he was absolutely and transparently honest, and as often as not the stories which he related were against himself. He had the habit of sometimes thinking aloud, and as he never took pains to dissimulate, the consequences were sometimes a little embarrassing. Fortunately he was of a philosophic turn of mind, and he accepted stoically whatever fate had in store, and though he could grouse like the rest of us on occasion, he never whined. He was an excellent influence in the medical school, an ideal hospital officer, and the very model of the perfect English gentleman. Could more be said to show how keenly we in Newcastle feel his loss?"

Mr. Angus married Miss Maude M. Arnison, who survives him with two daughters.

HENRY EDWARD ARMSTRONG, M.R.C.S. ENG., D.HY. DURH.

Dr. H. E. Armstrong, who died on Oct. 5th in his eighty-fifth year, was the first medical officer of health of Newcastle-upon-Tyne. Born at Chipchase Mill, North Tyne, of old yeoman stock, he went to school at Brampton, served his apprenticeship at the Newcastle Dispensary, studied at the Newcastle College of Medicine (Neville Hall), and qualifi in 1864. He was then given resident char of the old Newcastle Dispensary in City-roa and the old Fever House (founded in 1807), a in 1873, when the City Council resolved to appoi their first whole-time medical officer of healt Armstrong was the obvious man for the post. held office until the end of 1912, when he retired pension.

The story of Armstrong's life is closely associat with the rise of sanitation in England, for he was t intimate friend of such men as Buchanan, Thorn Thorne, Power, and Murphy. When he took off Newcastle was an ancient city clinging desperately its stifling courts and crumbling tenements. It largely due to his persistence that practically all the old rookeries are now swept away, so that, although it has its housing difficulties, it has now singularly few slums. A glance at his early reports will show him advocating many of the newest ideas of to-day. He was one of the earliest workers against bovine tuberculosis, and as far back as 1892 Newcastle obtained powers, limited it is true, to deal with tuberculous milk. It was his practice to condemn and seize the whole carcass of a food animal showing any evidence of tuberculosis, on the ground t there was no such thing as localised tuberculo He anticipated the principles of John Bur Milk and Dairies Bill. In the City Hospital Infectious Diseases, opened in 1888, he institu a proper service of nurses in place of the atte ants in the old Fever House, whose sole qualif tions for appointment were that they sho have had "the typhus," and should be of sober hab His charge as port sanitary officer lasted from 1 till 1896, when he resigned as a result of the difficul created for him by his bold denunciation of the sanit conditions prevailing on many ships sailing out of river Tyne.



DR. HENRY ARMSTRON

In association with the late Dr. H. J. Yeld Sunderland, Dr. Armstrong was responsible for founding of the Northern Counties Association Medical Officers of Health in 1875. He was tw chosen as president of the parent society and elected an Honorary Fellow in 1920. But his w was confined within no rigid limits. He was v closely associated with the growing University Col of Medicine, and from 1878 to 1887 acted as honorary secretary and subsequently as a gover He was himself a lecturer in the College for ne 40 years, at first on botany and later on hygiene in widest sense. The degree in hygiene in the Univer of Durham, which he did much to found, he was first to obtain.

Dr. Armstrong had strong literary tastes, and a scholarly and widely-read man; Dr. H. Kerr, has contributed these biographical notes, writes him as a purist in style; a piece of slovenly composi in the report of a subordinate would cause him a irritation. He was methodical in his work, insisted upon punctiliousness in all office affairs. dabbled in music and art, was a keen photograp an enthusiastic angler, and well-travelled. At age of 65 he took up roller-skating, and spent muc his spare time for some years subsequently in vigorous pursuit. He had the warm affection his staff, and his was always a happy dep ment, no matter what troubles assailed it f without.

ALFRED JAMES MEYRICK PAGET, M.D., C.M. EDIN.

Alfred James Meyrick Paget, who died on Sept. 15th
Christchurch, Hants, was the third son of the
e Sir George Paget, Regius Professor of Physic
Cambridge, by Clara, daughter of the Rev.
omas Fardell. He was educated at the Uni-
rsity of Edinburgh where he graduated in
dicine and surgery in 1895, proceeding to the M.D.
o years later. He elected to practise abroad in
overnment appointments, and served under the
reign and Colonial Offices in Kenya from 1899
til 1904, after which date until 1916 he was senior
dical officer in Somaliland. This included the
riod during which the Mad Mullah caused so much
uble with the British authorities, and Paget's
sponsibilities were grave, aggravated as they were
the heavy incidence of tuberculosis upon the
ritory, as well as severe epidemics of small-pox.
came into the vast zone of the war, and for his
vices to the troops during the military operations
received the Somaliland Medal. At his own expense
fitted up and, where needed, rebuilt the ruins of
ort near Berbera in order that it might be used as
isolation hospital for tuberculosis. This building,
ich was popularly known as "Paget's Folly,"
s beyond the British fortifications, and useful work
s carried out at it, until at last it was looted by the
ives. Much of Paget's strenuous labours were
ried on in the face of personal ill-health. He
s at one time and another the victim of malaria
l scurvy, and heart trouble manifested itself.
was invalided in 1900 but returned to hard work
til in 1916, when he was 47 years of age, he could no
ger undertake the physical toil, especially the long
nel rides necessitated by his colonial appointment.
in 1917, as an officer in the Territorial Army, he
rked in the mental wards of the Lord Derby
spital and also at Ripon; and later, until two years
, he served under the Ministry of Pensions, where
keenness for work caused him to be retained beyond
usual period. On the termination of his engage-
nt with the Ministry of Pensions, he took a super-
nerary medical office at St. Mary Abbott's Hospital,
nsington, but in May of this year it became obvious
t he was suffering from his old tuberculous mischief.
vular heart trouble supervened and he retired to
ristchurch where he died.

He leaves three sons, one of whom qualified as a
dical man in 1924.

WILLIAM SMITH PORTER, M.D. DURH.

BY the sudden death of Dr. W. S. Porter, Sheffield
t the neighbouring district loses one who had been
amiliar figure both in medical and social circles
ring the last 40 years. Born in 1855 at Sheffield,
ere his father, John Taylor Porter, F.R.C.S., was
ractice before him, he was closely associated with
dical affairs throughout his life. He was educated
Repton School, Leeds Medical School, and King's
llege, London, and after qualifying as M.R.C.S. Eng.
878, proceeded to the M.D. Degree of the University
Durham in 1882, receiving the gold medal. His
st resident post was at the General (now the Royal)
rmary, and on starting private work as a consulting
ysician he joined the honorary staff first of the
spital and later of the infirmary. During all those
ars he was also actively engaged in teaching at the
school of medicine and later at the University,
ng for many years lecturer in medicine. As a
nsultant he was well known and respected not only
Sheffield, but for a wide area around; he belonged
the old school of courtly and cultured physicians.
his younger days he did some useful work in
nexion with lead poisoning from the water-supply,
was one of those who went to Berlin when
erculin was first introduced by Koch. As the years
t on, however, his real interests centred less on
dicine and more on the studies which he had always
ined to—that is, local history and local archæology.
His knowledge on these subjects was wide and deep, and anyone seeking information about old Sheffield went first to Dr. Porter to obtain it. From time to time he published the results of his work, and his writings were always pleasing and of literary merit.

"Up to quite recently," writes a colleague, "he was a great walker. The neighbouring hills and moors of Derbyshire were very familiar to him and he loved them very dearly. Many a younger man envied his long stride and his untiring energy in a long ramble. But to all who knew him Porter will be remembered first not as a physician nor even as an archæologist, but as a gentle, courteous, kindly companion, who never said an unkind word or thought an unkind thought of any man. His genuine enjoyment always added to the happiness of others, for he had the gift of never growing old."

Dr. Porter was at one time president of the Sheffield Medico-Chirurgical Society, and last year was president of the Sheffield Literary and Philosophical Society. He married in 1893 a daughter of the late Mr. Charles Lockwood. She died in 1922.

Medical News.

UNIVERSITY OF LONDON: *University College.*—A public lecture entitled the Static Reflexes of Magnus: How Animals Get Right-Way-Up and Keep So (with cinematograph illustrations), will be delivered by Prof. Arthur J. Hall, on Tuesday, Oct. 18th, at 5 P.M., in the Physiology Theatre (entrance in Gower-street). Dr. F. M. R. Walshe will take the chair and the lecture will be open to the public without fee or ticket.

HUNTERIAN SOCIETY.—The first dinner meeting of this session will be held at Simpson's Restaurant, 2 and 3, Bird-in-Hand Court, 77, Poultry, Cheapside, London, at 7.30 P.M., on Monday, Oct. 17th. At 8.30 P.M. Mr. A. E. Mortimer Woolf will give a Presidential Address on Some Personalities of the Hunterian Epoch.

EUGENICS SOCIETY.—On Wednesday, Oct. 19th, at 5.30 P.M., Dr. R. A. Fisher will speak on Multiple Births in Man; and on Wednesday, Nov. 16th, at 8.30 P.M., Prof. F. A. E. Crew will speak on Natural Immunity and Disease Resistance. Both meetings will be held at the rooms of the Royal Society, Burlington House, and all interested are invited to attend.

SOCIETY OF SUPERINTENDENTS OF TUBERCULOSIS INSTITUTIONS.—The next meeting of this Society will be held at 122, Harley-street, on Friday, Oct. 21st, at 3 P.M. Dr. J. Gravesen (Copenhagen) will speak on the Surgical Treatment of Tuberculosis of the Pleura, and Dr. Kennon Dunham (Cincinnati, U.S.A.) will read a paper entitled Various Types of Tuberculous Lesions as Seen Upon an X Ray Plate in the Child and the Adult, with lantern illustrations.

MEDICAL TOUR IN FRANCE.—Under the auspices of the Société Médicale du Littoral Méditerranéen a tour has been arranged to take place from Dec. 30th to Jan. 7th next. The places visited will include Hyères, St. Raphael-Valescure, Cannes, Grasse, Nice, Beaulieu, Monaco, Monte Carlo, Mentone, and particulars may be had from the Federation of the Health Resorts of France, 19A, Tavistock-square, London, W.C. 1.

THE Annual Medical Service will be held at Liverpool Cathedral on Oct. 16th at 3 P.M.; the preacher will be the Bishop of Chester. Applications for tickets for reserved area should be addressed to Dr. John Owen, 13, Rodney-street. It is requested that when possible academic dress be worn. A collection will be taken on behalf of the Royal Medical Benevolent Fund.

PEOPLE'S LEAGUE OF HEALTH.—A series of ten Sims Woodhead lectures is being given by the League in the lecture-room of the Medical Society of London, 11, Chandos-street, London, W., on Thursdays, at 6 P.M. The speakers are Prof. H. E. Roaf, Mr. E. B. Turner, Dr. J. Sim Wallace, Dr. Harold Gardiner-Hill, Prof. B. Collingwood, Prof. M. S. Pembrey, Prof. H. R. Kenwood, Dr. Thomas Beaton, and Dr. H. Crichton-Miller. The next will be given by Mr. E. B. Turner, on the Anatomy and Physiology of the Circulatory and Respiratory Organs, on Oct. 20th. Tickets for single lectures (1*s.* 6*d*) or the course (10*s.*) may be had from Miss Olga Nethersole, R.R.C., at 12, Stratford-place, London, W. 1. At its conclusion there will be an optional examination, with a travelling prize award.

Miss Ida C. Mann, M.B. Lond., F.R.C.S. Eng., has been appointed assistant surgeon to the Royal London Ophthalmic ("Moorfields") Hospital. She is the first woman to be appointed to the honorary staff of this institution.

ROYAL NORTHERN HOSPITAL.—Post-graduate courses will be held at this hospital from Oct. 25th onwards. They include a series of lectures on Tuesdays at 3.15 P.M., followed by tea, and an intensive course from Nov. 21st to 25th, when there will be numerous lectures and demonstrations in the wards. Further particulars may be had from the Dean, Dr. E. G. B. Calvert, at the hospital.

HELPING THE MANCHESTER HOSPITALS.—The Central Council of Voluntary Hospitals' Committees connected with the Manchester and Salford Medical Charities Fund is forming a Good Samaritan League with a minimum subscription of 5*s.* a year. The object is to make up the deficit of about £40,000 which every year weighs upon the hospitals of Manchester and Salford.

RADIOLOGICAL SOCIETIES.—It is expected that the amalgamation of the Rontgen Society with the British Institute of Radiology will be completed this month, and an exhibition and meeting are to be held on Nov. 17th and 18th at the Central Hall, Westminster, to mark the inauguration of the new body, to which the Society of Radiographers will continue to be affiliated. The proceedings will end with a dinner at the Great Central Hotel, Marylebone, on Nov. 18th at 7.30 P.M.

UNIVERSITY OF ST. ANDREWS.—The Principal, Sir James Irvine, at the autumn graduation ceremonial held on Oct. 7th, announced that the anonymous benefactor who had given £100,000 to the University was Dr. Edward Stephen Harkness, of New York. The gift would place St. Andrews in a unique position among the Scottish universities. More than one-fourth of the total sum was to be allocated towards the cost of building the new residence hall for men, with a view to restoring the old collegiate living, and there would also be scholarships carrying an obligation to reside within the University.

SOCIETY OF APOTHECARIES OF LONDON.—The Master's Day Dinner of this Society was held in its redecorated hall on Tuesday, Oct. 11th, Dr. R. Whiteside Statham, the Master, presiding, supported by Lieut.-Colonel C. T. Samman, R.A.M.C., and Dr. H. J. Ilott, respectively Senior and Junior Wardens. The Senior Warden, in proposing "The Health of the Master," dwelt on the family claim to the position which he occupied, as the nephew of a previous Master, and eulogised his assiduous attention to the business of the Court, in spite of the fact that he lived in Somersetshire, 134 miles from his work. The Master, in a studiously brief reply, pointed out the friendly associations which the Society had generally enjoyed with their senior corporation, the Royal College of Physicians of London, and their junior corporation, the Royal College of Surgeons of England. He strengthened his hereditary claim to the Mastership by mentioning that one of his ancestors had been Master before the Great Fire of London, which destroyed the neighbouring premises of the Physicians and also burnt down their own hall, which had been rebuilt, as the guests now saw it, immediately afterwards. He then proposed "The Health of the Royal Colleges," associating with the reply the names of Dr. Sidney Phillips, the Treasurer of the Royal College of Physicians, and Mr. F. J. Steward, Vice-President of the Royal College of Surgeons. Dr. Phillips, in detailing his personal relations with the Society, caused merriment by dwelling on the excellence of the tea which was always provided for the examiners; and Mr. Steward, also bearing testimony to the harmony which existed between his College and the Society, mentioned the quality of the tea-table hospitality. The toast of "The Guests," proposed by the Junior Warden, was responded to by Sir James Berry and Sir Henry Curtis Bennett. The President of the Royal Society of Medicine described how in his Serbian experiences he had been forced to wander from the paths of pure surgery into those of the physician and apothecary, travelling across mountains on horseback with a wallet of drugs of emetic, styptic, or evacuant nature. Sir Henry Curtis Bennett started amusingly by saying that there had been a good deal of talk about the tea of the Society, but that on this particular occasion he had chiefly come across their port; but he closed with an eloquent analogy between the position of the doctor, face to face with the naked body and soul of the sufferer, and the criminal lawyer, face to face with the fundamental morals of a tortured client. The proceedings at the dinner were enlivened with some really effective singing by Miss Vera Devna, and violin solos by Miss Winifred Stocken.

DURING the illness of Dr. R. J. M. Horne, fr injuries sustained in carrying out his duties, the Po Council have appointed his wife, Dr. Laura Katharine Hor to act for him as deputy medical officer of health.

ROYAL INSTITUTION.—On Tuesdays, Nov. 1st, 8 and 15th, Sir John Herbert Parsons will deliver a series three Tyndall lectures on Light and Sight.

A HOSPITAL SWEEPSTAKE.—In the hope of raisi at least £5000 the Metropolitan Hospital, Kingsland-road, had organised a sweepstake, with 6*d.* tickets, and £ worth of prizes, upon the race for the Cesarewitch. A several thousand tickets had been sold the scheme abandoned upon threat of a police prosecution. The hospi has held other sweepstakes on similar lines without objecti

HOSPITAL SAVINGS ASSOCIATION.—This associati reports that during the financial year ended July 31st interim payments amounting to £102,764 were made London hospitals in respect of services rendered to con butors and their dependents. The association has 350,(wage-earning supporters in London alone, and althou based on a regular weekly contribution of 3*d.* only, its inco has risen from £2000 in 1923 to £200,000 in 1927.

DONATIONS AND BEQUESTS.—Under the will of t late Sir Mark Oldroyd, J.P., of Batley and Whitby, testator left £1000 to the New Building Fund of the Dewsb and District General Infirmary (unless he had given such s in his lifetime), "being the sum I intend to contribute I live to lay the foundation-stone of such new build according to my promise given."

GENERAL LYING-IN HOSPITAL.—For the first ti since it was established in 1767 this institution, in York-ro Lambeth, is appealing for help. By the terms of the le under which it holds two adjacent houses, these structu which are almost derelict, have now to be rebuilt at a c of £40,000, three-quarters of which has yet to be rais The rebuilding will provide better accommodation for c patients, nursing staff, and pupils—the hospital has training school for midwives and monthly nurses, and ho refresher courses for those already in practice.

CHARING CROSS HOSPITAL DINNER.—The ann dinner of past and present students was held at the H Victoria on Oct. 5th, Dr. Cuthbert Lockyer in the ch As junior member of the staff, Dr. F. H. Young propo the health of the Hospital and Medical School, compar himself (amid applause) to King Henry VIII. in his atta ment to a second, younger, and more sprightly br Dr. W. J. Fenton, responding, referred to the retiremen Dr. Cecil Bosanquet, whose services would fortuna remain available for teaching; and to the election of Young as assistant physician and sub-dean. Dr. Pear and Dr. Hamilton had transferred their services to ot hospitals, Mr. J. B. Banister had succeeded Dr. Cuthl Lockyer as obstetric physician, and Mr. Everard Willi had been appointed to fill the vacancy thus left. The y said Dr. Fenton, had been very successful, 57 new stud (including dental students) having entered. The succe won were attributable to the careful individual atten of the teachers, to the fact that it was unnecessary to st many deep around the cases, and to the relative ease obtaining appointments. The site of the Royal Westmin Ophthalmic Hospital had been acquired, and £65,000 of the £75,000 required had been subscribed. With addition of this valuable site it would be possible to 60 beds to the hospital. A year ago the Patholog Institute had begun to take work from outside practitio so as to assist them in the proper treatment of pati who could not afford pathological investigations in ordinary way. So far as he knew the cases had all t of this kind, and neither in practice nor in intention there any competition with other pathologists. The sch was working well and was much appreciated. In conclus Dr. Fenton referred to the amalgamation of the Cha Cross and Royal Dental Hospitals and the conveni of this amalgamation to the students. Dr. J. M. H. Macl proposing the health of the chairman, referred to popularity, his success as a teacher, his contribution gynæcology, his unfailing courtesy, and the reputation w he had given to Charing Cross Hospital by his work. Lockyer, in reply, spoke of many contemporaries who brought distinction to the School, and notably of Frederick Mott whose loss, he said, was "not ours only shared by the whole world." This was the fortieth di that Dr. Lockyer had attended, and he expressed gratitude to those with whom he had worked during long a period. During the evening entertainment provided at intervals by Mr. Nelson Jackson, Dr. Ta Harris, and Dr. L. P. Phillips.

GUILD OF ST. LUKE.—The annual festival service of the Guild will be held in Westminster Abbey on Sunday, Oct. 23rd, at 6.30 P.M. The preacher will be the Bishop of Southwark.

GRADUATES OF THE UNIVERSITY OF EDINBURGH.—The West Riding Association of Edinburgh Graduates will hold its annual general meeting at the Great Northern Station Hotel, Leeds, on Friday, Nov. 4th, at 6.30 P.M. The meeting will be followed by the annual dinner, at which Prof. Edwin Bramwell will be the Association's guest. Further particulars may be had from the hon. secretary, 33, Manor-row, Bradford.

GLASGOW POST-GRADUATE MEDICAL ASSOCIATION. This Association has now issued its programme of post-graduate teaching in Glasgow during the winter months, including a series of weekly demonstrations. The syllabus may be had from the Secretary of the Association at the University, Glasgow.

ROYAL NATIONAL ORTHOPÆDIC HOSPITAL.—The new out-patients' buildings, including modern massage, electrical, and light departments, are almost completed, while the new building at the branch hospital at Stanmore will be ready for occupation next month. The extension scheme inaugurated by Prince Henry's special committee has been undertaken at a cost of £125,000, of which £80,000 has been collected.

SEAMEN'S HOSPITAL AT MARSEILLES.—The Queen Alexandra Memorial Hospital at Marseilles which has been under construction for some time past is now completed, fully equipped, and ready to receive patients. It is staffed by British nurses and there is a British house surgeon who will act under the direction of local English-speaking doctors. The charges to seamen will be based upon those ruling in the Marseilles municipal hospitals.

MEDICAL GOLFING SOCIETY.—The autumn meeting of this Society was held at Rye on Oct. 8th and 9th. The course was in beautiful order, and every arrangement was made for the comfort of the competitors. The results of the competitions were as follows: W. H. Lamplough won the singles v. bogey with 1 up, H. Chapple was second with 1 down, and G. Dawson and G. Hebert tied for third place with 2 down. L. Bromley and Surg.-Commander Rusack won the foursomes v. bogey with 2 down. The following tied for second place with 3 down: J. Everidge and M. S. Mayou, and J. C. Lee and D. Ligat. The Canny Ryall Cup was won by J. D. Gray with the score of 95−18 (77). T. A. Torrance (75+3). J. W. Harrison (90−12), and M. S. Mayou (90−12) tied at 78 for second place. T. A. Torrance won on the replay.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—A series of lectures, entitled Practical Hints on Medicine, Surgery, and the Allied Specialties, will be given during the winter session at the house of the Medical Society, 11, Chandos-street, Cavendish-square, W., on Mondays, at 5 o'clock. The first will be given by Sir Humphry Rolleston on Monday, Oct. 17th, on the Diagnosis and Treatment of Some Endocrine Disorders. On Wednesday, Oct. 19th, at 4 P.M., Mr. Davenport will demonstrate at the Central London Ophthalmic Hospital; on Thursday, Oct. 20th, at 3 P.M., Mr. Attwater, Mr. Ainsworth-Davis, Mr. Coyte, and Mr. Loughnane will demonstrate at All Saints' Hospital; and on Friday, Oct. 21st, at 3 P.M., Dr. Bernard Myers will lecture at the Royal Waterloo Hospital on the Significance of the Enlargement of the Spleen in Children. These lectures and demonstrations will be open to members of the medical profession without fee. From Oct. 17th to 29th there will be an all-day course in Diseases of Children at the Paddington Green Hospital and the Victoria Hospital for Children. A two weeks' course in Gynæcology will start at the Chelsea Hospital for Women on the same date. From Oct. 24th to Nov. 5th, at 3 P.M., a series of demonstrations will be given at the Royal Eye Hospital, Southwark. A two months' comprehensive course is in progress at the National Hospital, Queen-square; any part may be taken separately. There will be practitioners' courses at the Hampstead General Hospital from Oct. 31st to Nov. 12th, and at the London Temperance Hospital from Nov. 21st to Dec. 3rd. The subjects of other courses during the month will be Medicine, Surgery, and Gynæcology, Royal Waterloo Hospital, Nov. 14th to Dec. 3rd; Diseases of the Chest, Brompton Hospital, Nov. 7th to 12th; Neurology, West End Hospital for Nervous Diseases, Nov. 21st to Dec. 17th; Urology, St. Peter's Hospital, Nov. 14th to 26th; Proctology, St. Mark's Hospital, Nov. 28th to Dec. 3rd; and Venereal Diseases, London Lock Hospital, Oct. 31st to Nov. 26th. Courses of all syllabuses are obtainable from the Secretary of the Fellowship at 1, Wimpole-street, London, W. 1.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

TUESDAY, Oct. 18th.—5.30 P.M., GENERAL MEETING OF FELLOWS. Ballot for election to the Fellowship. 8.30 P.M., PATHOLOGY. Communications: J. McIntosh: The Histology of Some Virus Infections of the Central Nervous System. R. J. Ludford: The Repair of Superficial Skin Lesions in the Mouse. W. Cramer: Stomach Lesions in Rats Kept on a Diet Deficient in Vitamin A.

THURSDAY.—5 P.M., DERMATOLOGY. (Cases at 4 P.M.) Cases: Dr. F. Parkes Weber: (1) Chronic Pemphigus or Dermatitis Herpetiformis in a Child. Dr. J. A. Drake: (2) Multiple Basal-Celled Epitheliomata. Dr. H. W. Barber: (3) and (4) Two Cases of Folliculitis Ulerythematosa Reticulata (MacKee). (5) Lichen Planus, Previously Shown as Lichen Nitidus. Other cases will be shown.

FRIDAY.—8 P.M., OBSTETRICS. Specimen: Mr. A. L. Walker: Rupture of the Uterus Following Cæsarean Section. Short Communication: Mr. A. C. Palmer: The Age Incidence of Carcinoma Corporis Uteri. Paper: Sir Ewan Maclean: A Lantern Lecture on a Visit to Certain Medical Schools in America. 8.30 P.M., ELECTRO-THERAPEUTICS. Presidential Address: Sir Henry Gauvain: Electro-Therapeutics and the Future of Medicine. Short Papers: Prof. Iselin (Bâle): Cancer of the Breast. Dr. Gravesen (Denmark): The Qualitative Radiological Diagnosis of Pulmonary Tuberculosis. A short paper will also be read by Dr. Dunham (Cincinnati).

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos-street, Cavendish-square, W.

THURSDAY, Oct. 20th.—8.15 P.M., preceded by a demonstration at 7.45, the President, Prof. J. W. W. Stephens, F.R.S., of Liverpool, will deliver the Inaugural Address on the Functions of the Spleen (illustrated by lantern slides).

LONDON CLINICAL SOCIETY, at the London Temperance Hospital.

THURSDAY, Oct. 20th.—9 P.M., Dyspepsia. Openers: Dr. John Ryle and Mr. Herbert Paterson. All medical practitioners are invited.

EUGENICS SOCIETY.

WEDNESDAY, Oct. 19th.—5.30 P.M. (in the rooms of the Royal Society, Burlington House, Piccadilly), R. A. Fisher: Multiple Births in Man.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, Oct. 17th, to SATURDAY, Oct. 22nd.—FELLOWSHIP OF MEDICINE. Special lecture at the Medical Society of London, 11, Chandos-street, Cavendish-square, W., on Monday, 5 P.M., by Sir Humphry Rolleston: Diagnosis and Treatment of Some Endocrine Disorders.—CENTRAL LONDON OPHTHALMIC HOSPITAL, Judd-street, W.C. Wed., clinical demonstration by Mr. Davenport at 4 P.M.—ALL SAINT'S HOSPITAL, Vauxhall Bridge-road, S.W. Thurs., 3 P.M., demonstrations by Mr. Attwater, Mr. Ainsworth-Davis, Mr. Coyte, and Mr. Loughnane.—ROYAL WATERLOO HOSPITAL, Waterloo-road, S.E. Fri., 3 P.M., lecture by Dr. Bernard Myers: The Significance of the Enlargement of the Spleen in Children. All of the above lectures and demonstrations are open to members of the medical profession without fee.—CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road, W.C. Clinical course, all day.—CHELSEA HOSPITAL FOR WOMEN, Arthur-street, S.W. Special course in Gynæcology. Mornings and/or afternoons.—LONDON SCHOOL OF TROPICAL MEDICINE, Endsleigh-gardens, W.C. Tues. and Thurs., clinical demonstration at 2 P.M. by Dr. Low and Dr. Manson-Bahr.—ROYAL FREE HOSPITAL, Gray's Inn-road. Wed., 5.15 P.M., lecture-demonstration by Dr. Heald.—PADDINGTON GREEN CHILDREN'S HOSPITAL, Paddington Green, W., VICTORIA HOSPITAL FOR CHILDREN, Tite-street, Chelsea. Combined course in Diseases of Children, all day.—NATIONAL HOSPITAL, Queen-square, W.C. Special two months' course in Neurology. Further information from the Secretary, Mayfair 2236.

WEST LONDON HOSPITAL, POST-GRADUATE COLLEGE, Hammersmith, W.

MONDAY, Oct. 17th.—11 A.M., Mr. Tyrrell Gray: Surgical Wards. 2 P.M., Mr. Simmonds: Surgical Out-patients. Dr. Ironside: Medical Out-patients.

TUESDAY.—10 A.M., Medical Registrar: Ward Demonstration. 2 P.M., Mr. Sinclair: Surgical Out-patients. 4.30 P.M, Dr. Shaw: Emphysema.

WEDNESDAY.—10 A.M., Dr. Owen: Medical Diseases of Children. 10 A.M., Dr. Burnford: Medical Wards.

THURSDAY.—10 A.M., Dr. Grainger Stewart: Neurological Department. 2 P.M., Dr. Ironside: Medical Out-patients. 3 P.M., Sir H. Simson: Gynæcological Ward.

FRIDAY.—10 A.M., Dr. Dowling: Skin Department. 2 P.M., Mr. Addison: Operations; Mr. Vlasto: Aural Vertigo (lecture).

SATURDAY.—9.30 A.M., Dr. Burnford: Bacterial Therapy and Ward List. 10 A.M., Dr. Owen: Medical Diseases of Children.

Operations, Medical, Surgical, and Special Out-patients, daily 10 A.M. to 5 P.M.: Saturdays, 10 A.M. to 1 P.M.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY, Oct. 17th.—2.30 P.M. to 5 P.M., Medical, Surgical, and Gynæcological Clinics. Operations.

TUESDAY.—2.30 P.M. to 5 P.M., Medical, Surgical, Throat, Nose, and Ear Clinics. Operations.

WEDNESDAY.—2.30 P.M. to 5 P.M., Medical, Skin, and Eye Clinics. Operations.

THURSDAY.—11.30 A.M., Dental Clinic. 2.30 P.M. to 5 P.M., Medical, Surgical, and Ear, Nose, and Throat Clinics. Operations.

FRIDAY.—10.30 A.M., Throat, Nose, and Ear Clinics, 2.30 P.M. to 5 P.M., Surgical, Medical, and Children's Diseases Clinics. Operations.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 49, Leicester-square, W.C.

TUESDAY, Oct. 18th.—5 P.M., Dr. H. W. Barber: Bacteriology and Mycology.

THURSDAY.—5 P.M., Pathology Demonstration.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

THURSDAY, Oct. 20th.—4 P.M., Mr. Barrington-Ward: Hernia.

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.C.

WEDNESDAY, Oct. 19th.—4 P.M., Prof. Lyle Cummins: Tuberculosis as a Social Disease.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE COURSE.

TUESDAY, Oct. 18th.—4.15 P.M., Dr. T. H. Oliver: Some Recent Views on Nephritis.

FRIDAY.—4.15 P.M., Dr. J. Gray Clegg: The Field of Vision.

Appointments.

CLAXTON, VERA E., M.B., B.S. Lond., has been appointed House Surgeon to the New Sussex Hospital for Women and Children, Brighton.

DEARNLEY, GERTRUDE, M.D., B.S. Lond., Consulting Gynæcological Surgeon to the Wembley Hospital.

PINKERTON, NORAH D., B.Sc. Wales, M.B. Lond., M.R.C.S. Eng., Assistant Medical Officer of Health for Bath.

Certifying Surgeons under the Factory and Workshop Acts: ROBERTS, J. F. M.D. Liverp. (Liverpool (Garston) District of the County of Lancaster); HAWES, W. A., M.B., B.S. Lond., D.P.H. (Stamford District of the County of Lincoln).

Vacancies.

For further information refer to the advertisement columns.

Ashton-under-Lyne, District Infirmary.—Res. Surg. O. At rate of £200.

Bath, Somerset, and Wilts Central Children's Orthopædic Hospital, Combe Park.—Asst. Res. M.O. At rate of £120.

Bethlem Hospital, Lambeth-road, S.E.—Res. H.P. £25 per quarter.

Birmingham and Midland Eye Hospital.—Res. Surg. O. £150.

Birmingham Cripples' Union and Royal Orthopædic and Spinal Hospital.—Sen. H.S. £150.

Birmingham, Woodlands Open Air Orthopædic Hospital.—Jun. H.S. At rate of £150.

Bristol Royal Infirmary.—Sen. Res. M.O. £200.

Buxton, Derbyshire, Devonshire Hospital.—Asst. H.P. At rate of £150.

Cambridge, Addenbrooke's Hospital.—Hon. Asst. P. to Out-patient Dept.

Cancer Hospital, Fulham-road, S.W.—H.S. At rate of £100.

Central London Ophthalmic Hospital, Judd-street, W.C.—Asst. Surg.

Derbyshire Royal Infirmary, Derby.—Ophth. H.S. £150.

East London Hospital for Children and Disp. for Women, Shadwell, E.—H.P., H.S., and Cas. O. Each at rate of £125.

Edinburgh Royal Infirmary, Eye Dept.—Sen. Clin. Asst., &c. £145.

French Hospital, 172, Shaftesbury-avenue, W.C.—Asst. Radiologist. £100.

Greenwich Union.—Fourth Asst. M.O. £300.

Hospital of St. John and St. Elizabeth, 40, Grove End-road, N.W. Asst. S.

Infants Hospital, Vincent-square, Westminster, S.W.—H.P. At rate of £75.

Ipswich Administrative County of East Suffolk.—Asst. Cou M.O.H. £600.

King's College Hospital, Denmark-hill, S.E.—Hon. Anæsthet Also Jun. Phys.

Lancashire County Council.—Asst. Dispensary Tub. O. £700

Manchester Royal Infirmary.—Asst. Res. Surg. O. At rate £150.

Metropolitan Asylums Board, Mental Hospitals Service.—Sec Asst. M.O. £560. Also Jun. A.M.O. £500.

Metropolitan Hospital, Kingsland-road, E.—Sen. H.P., Sen. H Jun. H.P., Jun. H.S., and two Cas. O.'s. Each at rate £100.

Northampton General Hospital.—Asst. H.S. At rate of £150.

Norwich City.—Asst. M.O.H. and Sch. M.O. £600.

Oxford, Radcliffe Infirmary and County Hospital.—Hon. Hon. Asst. S., and Hon. Orthop. S.

Plymouth, South Devon and East Cornwall Hospital.— H.S. Also Casualty H.S.

Portsmouth, Royal Portsmouth Hospital.—Cas. O. At of £100.

Rochester, St. Bartholomew's Hospital.—Third Res. M.O. rate of £175.

Royal Chest Hospital, City-road, E.C.—Res. M.O. Also At rate of £150 and £100 respectively.

Royal London Ophthalmic Hospital, City-road, E.C.—Sen. At rate of £150.

Royal National Orthopædic Hospital, 234, Great Portland-st W.—Five Registrars. Each £100.

Royal Northern Hospital, Holloway, N.—Med. Reg. £

Royal Waterloo Hospital for Children and Women, Waterloo-r S.E.—H.S. At rate of £100. Also Asst. Radiolog £50.

St. John's Hospital for Dis. of Skin, 49, Leicester-square, W.C Pathologist. £100.

Sheffield Royal Hospital.—H.P. and H.S. Each at rate of £

Warwick County Mental Hospital, Hatton.—Asst. M.O. £30

West End Hospital for Nervous Diseases, Regent's Park, N.W Hon. Anæsthetist.

West Sussex County Council and Bognor Urban D.C.—A County and Dist. M.O.H. £700.

Willesden, General Hospital, Harlesden-road, N.W.—P. in cha of Dept. for Dis. of Skin.

Vacant appointments for Certifying Factory Surgeons announced at Braintree (Essex) and at Rushden (No amptonshire).

Births, Marriages, and Death

BIRTHS.

MALHOTRA.—On Oct. 3rd, at Dudley House, Beaumont-str W., the wife of Captain R. C. Malhotra, I.M.S., of a

ROBINSON.—On Oct. 3rd, at Chatham, the wife of Surg Commander F. Cecil Rob nson, R.N., of a son.

MARRIAGES.

FRAZER—O'BRIEN.—On Oct. 8th, at St. Mary's Chu Hampstead, N.W., Robert Bruce Fair Frazer, L.R.C Barrister-at-Law, to Kathleen O'Brien, M.B., B. daughter of P. J. O'Brien, M.D., of Middleton Ho Middleton, Co. Cork.

HALL—KIRKPATRICK.—On Sept. 27th, at the Congregati Church, Wendover, Bucks, Squadron Leader Philip Augu Hall, M.D., Royal Air Force Medical Service, to Chris Campbell, daughter of Mr. and Mrs. D. Kirkpatrick, Walla

MILSON—POINGDESTRE.—On Sept. 27th, at the Parish Ch Barnes, Ernest Henry Milson, M.R.C.S., L.R.C.P. Ashford, Middlesex, to Grace Lyndon Poingdestre, daug of the late Mr. and Mrs. H. A. Poingdestre, of St. He Jersey, and Bedford.

MORTON—SPENCER.—On Oct. 5th, at Sanderstead, Su Eric Fetherstonhaugh Morton, M.R.C.S., L.R.C.P. Constance Adolpha Spencer, elder daughter of Fre W. Spencer, of Dunmore, Kingsbridge.

DEATHS.

ARMSTRONG.—On the 5th inst., aged 84 years, Henry Ed Armstrong, D.Hy., of the Brow, Wylam, Northumber formerly Medical Officer of Health for Newcastle-upon-T

CLEMMEY.—On Sept. 27th, at Merton-road, Bootle, Wi Newlands Clemmey, J.P., M.R.C.S., aged 58.

EVANS.—On Oct. 9th, at Beechwood, Corfton, Craven A William George Evans, F.R.C.S., L.R.C.P., aged 70 ye

HALLOWES.—On Oct. 3rd, at Elmsdale, Buckland Maidstone, Adolphus Henry Blackwood Hallowes, M.R. L.R.C.P., aged 83.

O'CONOR.—On Oct. 8th, at Buenos Aires, after a short ill John O'Conor, K.B.E., M.D., aged 63.

PORTER.—On Oct. 5th, suddenly, at Sale-hill, Sheffield, Wi Smith Porter, M.D., aged 71.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notic Births, Marriages, and Death.

A SHORT account of the work done for the pu health in Westminster has been issued by the Public H Committee and distributed by Dr. Andrew Shinnie, medical officer, in connexion with Health Week.

Notes, Comments, and Abstracts.

BORDERLINE INSANITY.

By JOHN P. STEEL, M.D. EDIN.,
DEPUTY MEDICAL SUPERINTENDENT, ST. LUKE'S HOSPITAL, MIDDLESBROUGH.

RECENTLY there has been a great deal of discussion in the medical and lay press concerning the certification of the insane, and the discussion on the Report of the Royal Commission on Lunacy has brought the matter forward, especially from the point of view of certification. There seems to be no doubt that the present method of certification is to say the least, not quite satisfactory; and the alternatives suggested all bear upon either the early insanities or upon the insanities with a good prognosis.

One of the gravest difficulties at present in dealing with State-aided (or "pauper") patients is that, once a certificate has been fully completed, a stigma is attached to the patient which will, in all probability, remain for the rest of his or her life, and which may prove a very severe handicap in obtaining employment. To the irrecoverable patient it matters little, hard though it may be upon the relatives; but to the patient eventually discharged as cured it is always serious, and sometimes fatal, for the stigma may prevent resumption of the ordinary daily work, and the consequent disability may precipitate another attack. The wealthier sufferer who is able to take advantage of the "voluntary order" system has not the same disadvantage, as a definite mental breakdown can often be avoided by early recognition and treatment. For the bulk of the patients using the public mental hospitals, however, such early treatment, or perhaps prophylaxis, is usually impossible, and the incipient mental breakdown has to be disregarded and the ordinary routine carried out until conduct definitely deteriorates and certification is essential in the interests of the public.

Without overlooking the ætiological significance of mental capability, inherent weakness, &c., many such attacks may be classed as "industrial" insanities, and are due to stress and worry, whilst not a few follow definite malnutrition. Such cases are, in the main, recoverable. The mental attack is analogous to a physical condition, but the treatment is hardly the same at present; the sufferer from chronic nephritis does not undergo any medical or legal process which leaves a stigma for life. The physician alone is responsible and carries out treatment for the restoration of full economic output; indeed, the patient understands the condition and gives willing coöperation in the treatment.

The Fear of the Asylum.

The subject of a mental attack, however, has frequently to be certified because of the potential danger. The patient who has a physical disability consults his doctor as soon as he feels the necessity, because he knows that it is essential; if he is ordered to hospital he is sure that he will obtain help and sympathy from his employers and workmates. The patient with some mental disability, on the other hand, dreads going to a medical man; and if his relatives notice mental symptoms they seldom suggest any medical attention in the early stages, for there is always the shadow of the "asylum" in the background.

This fear of the "asylum" is the reason why so many of the temporary insanities are not treated before certification is essential; no medical man sees the case until it is too far gone for ordinary hospital treatment. In other words, the case has been one of borderline insanity, or has been allowed to lapse into an actual insanity, just because certification is dreaded for its stigma.

Some remedy should be found both for the sake of the patient and for the sake of the mental hospitals. The proposed "provisional certificate" will not inspire confidence either in patients or their relatives, because the latter will still consider that their friend has been "taken to an asylum," and the same difficulty will arise after discharge, whether the certificate is valid for one week or one year. To the ordinary man a certificate is simply a legal tag, stating that a person has been insane, and to most people there is the addendum that the wearer is liable to become violently insane at any time, for the present conception of insanity is that of acute mania.

The Neurological Clinic.

Certification in the great majority of cases is the only right course, but there are many incipient insanities in which there is no real aberration of conduct. These are the cases in which every effort should be made to avoid certification, and perhaps the only way is to educate the public to recognise that insanity does not mean acute mania or acute melancholia alone. How this is to be done it is difficult to say, but the increase in the numbers of "neurological" clinics attached to general hospitals is certainly a great step in the right direction. Many patients have some slight unbalance, not enough for certification but quite sufficient to justify admission to a general hospital for rest or medical treatment.

The great difficulty in this direction lies in the lack of beds for "neurological" cases (using "neurological" as a euphonism for "borderline"), because the bed accommodation in most general hospitals is very severely taxed already. In the larger infirmaries there are small wards for patients requiring special observation (from a mental standpoint), but the majority of the smaller hospitals have no such wards.

The out-patient clinics seem to be the only method of detecting incipient insanities, and it is a great pity that more of general hospitals do not make provision for them. The public have, at present, a confidence in the ordinary hospital which they have not in the mental hospitals, and a patient will willingly accept advice given to him to rest in an ordinary hospital, but will fight very shy of any suggestion that he should attend at a mental hospital either for out-patient treatment or for advice.

As so many of the "industrial insanities" have a very definite physical basis, it should be possible to arrange that certain beds (either existing or to be provided) be available for patients of the "neurological" clinic, in which they shall receive all the medical attention necessary to avert an actual mental breakdown.

A CONFERENCE ON INDUSTRIAL WELFARE.

(FROM A SPECIAL CORRESPONDENT.)

THE conference of the Institute of Industrial Welfare Workers was held this year at Edinburgh, which is becoming so much a centre for meetings of this kind that it has been dubbed "The Geneva of Great Britain." The Hostels Association's splendid accommodation at Craigmillar lends itself readily to vacation congresses of every sort.

The problem of industrial welfare in the technical sense is many-sided. As Mr. JACKSON, speaking as Chief Conciliation Officer, Ministry of Labour, pointed out at the recent meeting, the welfare departments have now passed the pioneer stage and it is possible to have a united and incorporated body of welfare workers. The late war made us familiar with the superintendent of welfare and really established the value of the experiment; and though at first there was a good deal of opposition from labour, the advantages of the system were soon realised—at any rate in the more fortunate munition factories.

Prof. JAMES F. REES (Birmingham) regarded the relation between employers and workpeople as one of the major problems of our time. The basis of this relation was the contract, and at one time this was supposed to be the sum and substance of the whole matter. But the implications of the wage bargain needed to be more carefully explored. Two modern movements converged in the conception of industrial welfare, the first being the desire on the part of the employer to provide something over and above what the law demanded or collective bargaining guaranteed. He might consider more closely the amenities of the factory or he might foster the interest in educational and recreational activities outside factory hours. His actions might have the good or bad attributes of paternalism; for a person who felt the moral urge to do good to others was likely to fail unless he allowed them to coöperate in their own salvation. The second movement was the actual problem of management; what the Americans called "personnel administration." In America there were much more elaborate forms of introducing the worker to the factory than there were in this country. A man should feel that his appointment had been based upon mature consideration and that the firm attached a real importance to the fact that he had been appointed. In Germany, under the new code, firms were forced by law to lay their balance-sheets before the Workers' Council, though they were not forced to explain them. The new German code provided for an appeal to a special court in the case of dismissals.

Prof. WILLIAM MCCLELLAND (St. Andrews) discussed what education could do for industry. Deeply embedded in the traditions of our educational system, he said, was an antithesis between a cultural education for a leisured class able to devote its time to liberal pursuits, and a useful education for the worker. Neither type in its pure form met the demands of a modern society, for now the "leisured" class had to engage in useful work and the "working" class had established their right to higher culture. And the kind of culture given in the so-called cultural courses was not the kind of culture which the modern worker needed. His culture should find points of contact with his everyday

activities and interests if it was to play any really effective part in his life. Much more valuable would be a culture organically related to his vocation and social activities, which would enable him to take an enlightened interest in his work, to understand its scientific basis and its technical and social relationships. Between the two types of education there was a gap to be bridged.

Dr. DAVID MCKAIL (Factory Surgeon, Glasgow) discussed the maintenance of health in industry. It demanded, he said, the coöperation of worker, employer, and the State. The necessary expenses should be a first charge on profits. In all the large factories a personnel department was a necessity from every point of view. This department must have a definite executive power in its own field and an allotted place in the councils of management of the factory. There was little use of a welfare system where the recommendations based on the experience gained were ignored or relegated to the indefinite future. Ventilation with pure fresh air was comparatively easily effected by the expenditure of power, and therefore with a definite oncost. To depend on natural forces for ventilation was to invite failure. Lighting of factories should be sufficient to prevent accident, eyestrain, and glare, and to encourage cleanliness. The inhalation of large quantities of any dust, whether poisonous or not, was unhygienic. A considerable amount of chronic disablement among workers was due to this cause, although not easily brought home to the industry concerned, as some of the affected workers drifted to other employment or, in the case of women, got married, so that the ultimate effects were lost sight of. The action of noise in impairing efficiency was not well understood. There could be no doubt that just as in time it impaired the hearing (e.g., in boiler-makers), it must cause a disturbance of the nervous centres which, in some persons, might have harmful results. Here, again, final results were lost sight of owing to the fact that people who found noise incommoding drifted into other occupations. Then there was the question of excessive speed of work. In the old non-mechanical days each individual made his own pace or rate of working and each came to be characterised as fast or slow. With machinery, the pace was uniform to a great degree. In the textile trades the worker could stop the machine as required. Some found that the steadiness needed to "make a pay" under the eight hours' day was a strain and that the bad old ten hours' day enabled them to take "rests" and feel more comfortable. Certainly the "rests" mode was more hygienic. As there was a minimal production insisted on for an individual, so there should be a maximum production determined for each process on physiological grounds so as to regulate the pace and amount of work put out in a given time. Because a person was speedy that was no reason why he should be allowed greatly to exceed the minimal rate of working and output. Such voluntary speeding-up on the part of employees was likely to have disastrous results in nervous breakdowns, rheumatoid arthritis, and other serious complaints. Dr. McKail's careful paper, prepared on the basis of extended study and practice as a factory surgeon, made a great impression on the conference.

Mr. LONGMUIR (Glasgow, President of the Scottish Society of Welfare Supervisors) exhibited a chart showing that March was the worst month for sickness. This is in accord with general knowledge. At present in Scotland, he said, they had only one holiday in spring and yet they had a week or so at New Year. He suggested that two days were ample at New Year and the balance should be added to Easter or the spring holiday. The New Year holidays were a relic of the days when each factory raised its own steam for power purposes and a week was required to clean the boilers. Under modern conditions that was no longer necessary.

Dr. MCKAIL said that there was a bigger strain on workers in the winter and the strain seemed to tell in March. He agreed that there should be an increased gap at Easter.

Mr. WILLIAM GRAHAM, M.P. (member of the Medical Research Council), dealt at the closing session with the place of industrial welfare in the community. He said that welfare work had to look constantly to the problems of industry at large so that the smallest scheme within the individual factory might have a definite ideal and direction. Much of the British reorganisation of industry on the purely public side was less effective than that undertaken in America or Germany. That tended to give these countries an advantage over Great Britain in export markets and America was able to make that advantage real even within the British Empire, as in the supply of motor-cars to Australia. Industrial welfare work of large vision would look to these problems. Further, industrial welfare work frequently suffered from suspicion as to motive. Many employers still regarded it as the beginning of interference with their freedom of control. On the other hand, many workers doubted whether they would have their place in the beneficial results of the increased efficiency under such schemes. No one disputed that greatly increased efficiency was necessary and urgent.

A HOME FOR CHILDREN WITH RHEUMATIC HEART DISEASE.

THE original "Heartsease" home at West Wickha for children suffering from rheumatic heart disease, w acquired by the Invalid Children's Aid Association in t autumn of 1926, the first 28 patients being admitted April of this year. On Oct. 6th an extension was oper by Lady Lennard, the additional accommodation havi been made possible by gifts from King Edward's Hospi Fund for London and the Ancient Order of Froth Blowe which, as Sir Alfred Fripp explained, has provided 17 c with an endowment of £500 each.

Sir Charters Symonds, chairman of the Invalid Childre Aid Association, said that the home was not a convalesc home in the ordinary sense, but a treatment centre children with a prospect of recovery, and a place for resea into the cause and prevention of heart disease. Child suffering from rheumatic affections of the heart requi a prolonged rest, often beginning with a considerable per in bed, and it required no great imagination to see t they would not be happy in homes with other children whose games they must not take part. The Associat had had the distinction of providing the first special ho for children with heart disease seven years ago, a sec home following four years later. The "Heartsease" ho was to replace the second home, the lease of which h expired. The open-air ward might be regarded as the lat thing in modern construction of this kind. Special gratitu was due to Sir Henry Lennard, by whose generosity waiving certain building restrictions the erection of ward had been made possible, and the friendly recept given to the project by residents of the district had ad greatly to the pleasure of carrying out the work.

A SUCTION PIPETTE.

THE micromethod of Linzenmeier for the determinat of the sedimentation time of the red cells has secured gen adoption. This method involves the mixture of a kn quantity of blood and of citrate solution in the bulb special pipette. After being mixed in the bulb the mixt is blown into the stem and the red cells allowed to sedim All those who have used this method have experienced annoyance of having sucked too hard and thereby dr the citrate-blood mixture beyond the bulb or of hav blown too hard and lost the mixture. Dr. Jacques Steph of Montana, has devised a simple modification which be a boon to all those who have experienced these trou To the end of the pipette at which suction is applied Stephani attaches a length of vaselined rubber pres tubing, to the other end of which is applied an ordi glass tap. Suction is produced by closing the tap sliding the rubber tube up the pipette. The suction ca stopped immediately when citrate solution and blood h entered the bulb of the pipette by opening the tap. A the blood and citrate solution have been mixed the ta again closed and the blood forced into the stem of the pip by movement of the rubber tubing along the stem of pipette in the reverse direction. Dr. Stephani apologises describing such a simple expedient in print, but the th of all who use this method and have not hit upon some similar device are due to him.

WANTED, A SKELETON.

THE matron of an excellent charity would be grat if any reader of THE LANCET would give her a skele in a sufficiently perfect condition to make clinical lect intelligible to the nurses of an obstetric hospital. If an is able to assist the matron we shall be happy to put hi communication with her.

A PHILOLOGICAL IMPOSSIBILITY.

To the Editor of THE LANCET.

SIR,—May I allude to the incorrect spelling of my n in your issue of Oct. 8th (pp. 764, 765)? The n "Heffernan," or more fully, "O'Heffernan," is the Anglic form of the Gaelic "Ua h- Eichthighearnán," mea literally "descendant of the horse-lord." There are "O'Heffernans," and at least six "Heffernans" on Medical Register. The spelling "Hefferman" is philologi impossible, and always incorrect.

I am, with apologies for troubling you,
Yours faithfully,
P. HEFFERNAN,
Major, I.M.S. (ret.); Tuberculosis Offic
Oct. 10th, 1927. Derbyshire County Council.

*** We much regret the error, though it has broug this interesting note.—ED. L.

[1] Schw. med. Wochenschr., 1927, xxxii., 765.

Harveian Oration

ON

GILBERT, BACON, AND HARVEY.

Delivered before the Royal College of Physicians of London on Oct. 18th, 1927,

BY SIR WILLIAM HALE-WHITE, K.B.E., M.D. LOND. & DUB., LL.D. EDIN.,
CONSULTING PHYSICIAN TO GUY'S HOSPITAL.

THERE are two reasons why Harvey should be placed in the select class of really great men. One is because he discovered that the blood circulates, being compelled to do so by the contraction of the heart; the other, even more powerful, is because he was among the earlier scientists to show the value of properly conducted experiment.

Every man's mind is compounded of what is born within him, modified by impressions received from without. Therefore it is of interest to see who were the men around Harvey who might have influenced him. At Padua there were his teachers; many Harveian orators have dealt with this part of his life, but I propose to see if any of his own countrymen, perhaps without his knowledge, can have helped to mould such of his thoughts as led to his great discovery. I shall make many quotations, but this, I trust, you will pardon, first, because, in any argument it is necessary that the premises should be precise; secondly, because the language of Bacon is like music to the ear.

Inasmuch as Harvey and Francis Bacon—commonly called Lord Bacon, which is altogether wrong, for his titles were Baron Verulam of Verulam and Viscount St. Alban—were contemporaries, we must consider whether it is likely that he swayed Harvey. The life of Bacon is a fascinating story, but lack of time forbids my saying anything about it which is not germane to my purpose.

THE ADVANCEMENT OF LEARNING.

Harvey published his discovery of the circulation of the blood in 1628, and tells us that he had, for nine years and more, in his lectures, confirmed these views by multiplied demonstrations in your presence, illustrated them by arguments, and freed them from the objections of the most learned and skilful anatomists." His first mention of it is in his notebook dated 1616. "The Two Bookes of Francis Bacon of the Proficience and Advancement of Learning Divine and Humane," were first published in 1605, when Harvey was 27 years old, 23 years before the publication of his book and several years before he made his discovery. "The Advancement of Learning," "the first great book in English prose of secular interest" (Church), had many readers, for three editions quickly appeared. When his "Instauratio" was issued Bacon sent the King a copy, with a letter saying he thinks it will find many readers "because near my former book of the *Advancement of Learning* is well tasted in the Universities here, and the English colleges abroad; and this is the same argument in ink deeper." [1] The "Advancement," which we thus see was widely read in the years immediately following its publication, implores those who wish to delve into the secrets of nature to discountenance mere authority and not blindly to believe what they are told, but to seek knowledge for themselves by observation and experiment; it teaches how properly to use induction, it points out the hopelessness of the false methods of reasoning commonly used, it has much in it about medicine. It is a noble work, devoted to the lofty purpose of increasing knowledge, its language is so beautiful and dignified that it may be placed second to that of Shakespeare.

The first book contains an oblation to James I., because Bacon longed to persuade the King to be interested in learning. In this he failed, as he had with Elizabeth.

Passing to the second book I will, by direct quotation,[2] try to convince you that the "Advancement of Learning," so immediately popular that Harvey must have known of it, would have appealed to him. Much of the argument is directed to show that a reform of method in the pursuit of knowledge is necessary. Thus:

"For as things are now, if an untruth in nature be once on foot, what by reason of the neglect of examination and countenance of antiquity, and what by reason of the use of the opinion in similitudes and ornaments of speech, it is never called down." [3]

"For the handling of final causes mixed with the rest in physical inquiries, hath intercepted the severe and diligent inquiry of all real and physical causes . . . . to the great arrest and prejudice of further discovery . . . . and have brought this to pass that the search for Physical Causes hath been neglected and passed in silence." [4]

"It being the nature of the mind of man (to the extreme prejudice of knowledge) to delight in the spacious liberty of generalities and not in the enclosures of particularity." [5]

"Where there is much controversy there is at many times little enquiry." [6]

"They hastened to their theories and dogmaticals and were imperious and scornful towards particulars." [7]

Next listen to a few quotations illustrating Bacon's plea for the experimental method:

"I find some collections made . . . . but commonly with a rejection of experiments familiar and vulgar. For it is esteemed a kind of dishonour unto learning to descend to inquiry upon matters mechanical" [8] (or as we should say now-a-days, experimental).

"All true and fruitful Natural Philosophy hath a double scale or ladder, ascendent and descendent; ascending from experiments to the invention of causes and descending from causes to the invention of new experiments." [9]

"Those experiments be not esteemed which have an immediate and present use, but those principally which are of most universal consequence for invention of other experiments,[10] the use of History Mechanical" (i.e., experimental) "is of all others the most radical and fundamental towards natural philosophy." [11]

Then there is a fine passage emphasising the value of experiment, too long to quote in full, it begins:

"But here was their chief error; they charged the deceit upon the senses, which in my judgment are very sufficient to certify and report truth, though not always immediately, yet by comparison, by the help of instrument." [12]

Nowadays, it is at last recognised that those who spend their lives investigating Nature should be paid. Bacon anticipated us, saying—

"There will hardly be any main proficience in the disclosing of Nature, except there be some allowance for expenses about experiments . . . . and therefore as secretaries and spials of princes and states bring in bills for intelligence, so you must allow the spials and intelligencers of Nature to bring in their bills, or else you shall be ill advertised." [13]

The "Advancement" tells us that medicine "is a most noble art," its object being "to tune this curious harp of man's body and reduce it to harmony." The author pities the physician for he is judged by the event—

"which is ever but as it is taken; for who can tell if a patient die or recover . . . . whether it be art or accident? And therefore many times the impostor is prized and the man of virtue taxed. Nay we see the weakness and credulity of man is such, as they will often prefer a mountebank or witch before a learned physician." [14] Consequently physicians say to themselves: "If it befall me as befalleth to the fools, why should I labour to be more wise." [15]

Bacon criticises the doctors of the day quite fairly; he finds that comparative anatomy, physiology, and morbid anatomy are not studied as they should be, that no use is made of vivisection, and that if—

"a man look into their prescripts and ministrations, and he shall find them but inconstances and every day devices without any settled providence or project." [16]

His attitude to medicine is shown in the sentence:

"There is one thing still remaining which is of more consequence than all the rest—namely, a true and active Natural Philosophy for the science of Medicine to be built upon" [17]

and his attitude to science may be summed up in two sentences:

"And this is the very thing which I am preparing and labouring at with all my might, to make the mind of man

by help of art, a match for the nature of things [18] . . . . when he uses some direction and order in experimenting, it is as if he were led by the hand." [19]

Surely, after these extracts, we must believe that Bacon's own physician, Harvey, was influenced by his patient's book which was widely known, was published some years before Harvey began his researches, contains much about medicine and preaches reform of method and the use of experiment, in both of which Harvey's strength lay. I do not like to think that he was so ill-educated as not to have followed Shakespeare and other learned people in the reading of the "Advancement," by the author of the already popular Essays, for his contemporary, Ben Jonson, in a review of the great English writers, says of him "he who hath filled up all numbers, and performed that, in our tongue may be compared or preferred either to insolent Greece or to haughty Rome," [20] and in these days we have Abbott speaking of Bacon's unique mastery of the English language. Remember, these words are said of a man writing at the time of Shakespeare and the Authorised Version, and then we get a measure of Bacon's greatness as a writer.

Another work of Bacon's that must have been known to Harvey, before the making of his discovery, is "De Sapientia Veterum," issued in 1609; it was much appreciated and was soon reprinted and translated. Its general trend is welcome to a man well disposed towards experiment, for the proper investigation of Nature is recommended in it.

THE NOVUM ORGANUM.

In 1620 a book was published which began thus:

"*The Great Instauration. Pro-œmium.* Francis of Verulam reasoned thus with himself and judged it to be for the interest of the present and future generations that they should be made acquainted with his thoughts." [21]

He tells us that the human intellect makes its own difficulties, and hence ignorance and mischiefs innumerable. Therefore the author is "to commence a total reconstruction of sciences, arts and all human knowledge." [22] Lest he should die before the work is finished, it was to be published in six parts. The first, which appeared after the second, was "De Augmentis." The second, issued in 1620, was the "Novum Organum," not quite completed. Only fragments of some of the other parts were ever written; Bacon calculated that his work when finished would be sixfold as voluminous as Pliny. If this estimate is correct we only have one-twentieth of the whole.

The "Novum Organum" has all the beauties of the "Advancement"; it is a masterpiece of condensed writing, without a word too many, and each word precisely right. As with the "Advancement," I will give extracts which will show that it also is just such a book as would help to form a mind like Harvey's. In the "Plan" introducing us to the "Novum Organum" we find this:

"The subtlety of experiments is far greater than that of the sense itself. I contrive that the office of the sense shall be only to judge of the experiment and that the experiment shall judge of the thing." [23]

"Those, however, who aspire not to guess and divine, but to discover and know; who propose not to devise, and mimic fabulous worlds of their own, but to examine and dissect the nature of this very world itself; must go to facts themselves for everything." [24]

In the preface is this eloquent exhortation:

"But if any man there be who . . . . aspires to penetrate further; to overcome, not an adversary in argument, but nature in action; to seek, not petty and probable conjectures but certain and demonstrable knowledge with me, that passing by the outer courts of nature which numbers have trodden, we may find a way at length into her inner chambers." [25]

In the "Novum Organum" itself we are warned not to pin our faith to the syllogism, for the premisses being only words, often there is no firmness in the superstructure, our only hope lies in a true induction; we are reminded that we can only progress by t study of particulars. We are told that—

"it is the peculiar and perpetual error of the hum intellect to be more moved and excited by affirmati than negatives; whereas it ought properly to hold its indifferently disposed towards both alike." [26]

"What a man had rather were true he more read believes." [27]

We suffer from "the mischievous authorities of syste which are founded either on common notions or on a f experiments or on superstition." [28]

Then follows advice to physicians to renounce varieties of false reasoning, for—

"the entrance into the kingdom of man, founded on sciences, being not much other than the entrance into Kingdom of Heaven, whereunto none may enter except a little child." [29]

"The manner of making experiments which men now is blind and stupid." [30]

"Men are inclined to turn aside from their experime for some practical application of them, like Atalanta, t go aside to pick up the golden apple and let victory esca them, they should seek for experiments of light, not experiments of fruit." [31]

A few pages further on we find this beauti passage:—

"And an astonishing thing it is to one who rightly c siders the matter, that no mortal should have seriou applied himself to the opening and laying out of a road the human understanding direct from the sense, by course of experiment orderly conducted and well built but that all has been left either to the mist of tradition, the whirl and eddy of argument, or the fluctuations and ma of chance and of vague and ill-digested experience." [32]

"No one has yet been found so firm of mind and purp as resolutely to compel himself to sweep away all theo and common notions and to apply the understanding t made fair and even, to a fresh examination of particulars.

"A greater abundance of experiments is to be sought and procured." [34]

Then, to magnify the dignity of investigation, Bac quotes the proverb of Solomon:

"The glory of God is to conceal a thing; the glory of king is to search it out." [35]

Bound up with the first edition of the "Nov Organum," Bacon published a "Description of Natural and Experimental History such as may se for the foundation of a True Philosophy." The int duction contains some of his most magnificent writi Listen to this from it:—

"Meanwhile what I have often said I must here emph cally repeat; that if all the wits of all the ages had or shall hereafter meet together; if the whole human had applied or shall hereafter apply themselves to Ph sophy, and the whole earth had been or shall be nothing academies and colleges and schools of learned men; without a natural and experimental history such as I going to prescribe, no progress worthy of the human could have been made or can be made in philosophy the sciences. Whereas, on the other hand, let such a hist be once provided and well set forth, and let there be ad to it such auxiliary and light giving experiments as in very course of interpretation will present themselves . . For in this way and in this way only, can the foundation a true and active philosophy be established; and then men wake as from a deep sleep, and at once perceive w a difference there is between the dogmas and figment the wit and a true and active philosophy, and what i in questions of nature to consult nature herself." [36]

One more quotation from the same source I can resist:

"Away with antiquities and citations or testimonie authors." [37]

WAS HARVEY INDEBTED TO THE "NOVUM ORGANUM"?

But some may say all this is beside the mark, before these two books appeared in 1620, Harvey, about four years, had been teaching that the bl circulates. Thus, in a leading article in the *Bri Medical Journal*, we find "a comparison of d shows that Harvey could not owe anything to "Novum Organum." [38] On the face of it this app a fair inference, but it is probably incorrect bec of the following considerations. The most trustwo

ccount we have of Bacon is that by his chaplain, awley, who says:

"His book of the *Instauratio Magna* . . . was the oduction of many years' labour and travel. I myself have en at least 12 copies of the *Instauration* revised year by ar one after another, and every year altered and amended the frame thereof, till at last it came to that model in hich it was committed to the press . . . he would often k if the meaning was expressed plainly enough." [39]

Further, many tracts, which are trials for the great ook, were found among Bacon's papers after his eath. Some were written as early as 1603–1605. need not name them as they can all be found in The Works of Francis Bacon." A quotation from e "Cogitationes" will suffice:

"And it were shame that men should have examined so refully the tinklings of their own voice and should yet so ignorant of the voice of nature." [40]

We see, therefore, that for many years before the ublication of the "Novum Organum," and before arvey began his experiments, Bacon's mind was uch occupied with it, that he worked hard at it, aking numerous trials; he certainly talked about with his chaplain, consequently it is likely that he lked about it with his physician, of whom, as we all see presently, he probably saw much, for there as no secret about Bacon's philsoophical work; he vited criticism from several friends; many had ready read the "Advancement" published earlier; often spoke of his desire to study; it was well own how he busied himself in his leisure. We can rdly err if we conclude that not only the thoughts pressed in the "Advancement," which we have en Harvey had ample opportunity of reading before began his experiments, but also those which nmered in Bacon's brain between the publication of is work and that of the "Novum Organum," in nich they were embodied, were known to and affected arvey, to whom they would have been particularly ngenial, for he became one of the greatest of scoverers because he experimented and disregarded ere authority.

Effect on Science of Bacon's Teaching.

If I have carried you in unison with me so far, you e with me in thinking that Bacon's teaching touched e mind of Harvey; still, it will be an advantage to if this opinion is strengthened by what others have ought of the position of Bacon's writings in the story of science. Aristotle and Leonardo da Vinci d experimented; several others, such as Albert the eat, Vanini, Campanelle, and Ramon Lull, as may seen in Prof. E. A. Peers's recent translation of anquerna,[41] saw that mere authority was allowed to erride reason. Roger Bacon had laid down precepts at might have guided men aright, but, so abstract d dogmatic was the ordinary teaching up to the ne of Francis Bacon, that these examples bore little ut, being stifled under the mass of theological, taphysical and commentatorial literature with which e Middle Ages abounded. It was Francis Bacon o caused this deadening fog, which bemused all ginality, to roll back when he directed men to card authority and to seek out nature by proper servation, proper reasoning, and proper experiment. ople of his own time saw this. Rawley says: "If ere was a beam of knowledge derived from God upon y man in these modern times, it was upon him."[42] ter Heylen, who was a young man when the Great nstauration" was first published, tells us—

"The Lord Chancellor Bacon was a man of most strong ain and a chymical Head . . . . Pity it was, he was not ertained with some liberal salary, abstracted from all airs both of Court and Judicature, and furnished with fficiency both of Means and Helps for the going on of Design. Which had it been, he might have given us such body of Natural Philosophy, and made it so subservient the public good, that neither Aristotle, nor Theophrastus ongst the ancients, nor Paracelsus or the rest of our ter chymists would have been considerable." [43]

Sprat writes:

"I shall only mention one Great Man who had the true agination of the whole extent of this Enterprise, as it is now set on foot; and that is, the Lord Bacon . . . . His Genius was searching and inimitable." [44]

The enterprise was the foundation of the Royal Society, and it is generally allowed that it was Bacon's "New Atlantis" and the thoughts inspired in others by him which led to the foundation of not only the Royal Society, but also of several foreign scientific associations. Metaphysical Cowley in his poem to this Society writes thus:

> "Bacon, like Moses, led us forth at last,
> The barren Wilderness he past,
> Did on the very Border stand
> Of the blest promis'd Land,
> And, from the Mountain's top of his exalted Wit,
> Saw it himself and showed us it." [45]

So much for the past opinion of Bacon's influence. During three centuries it has remained unchanged. We find Leibnitz [46] remarking—

"We do well to think highly of Verulam for his hard sayings have a deep meaning in them."

Whewell [47] mentions no other author in his preface and begins his book with a quotation from Bacon, and Macaulay writes that Bacon "moved the intellects which moved the world." Space allows me to quote only two modern writers. Prof. Thomas Fowler [48] tells us—

"What Bacon says of Plato is pre-eminently true of himself, he was 'a man of a sublime genius who took a view of everything as from a high rock.'"

He popularised and dignified experimentation and the study of nature.

"It would hardly, I think, be an exaggeration to compare Bacon in the intellectual sphere, with Luther in the sphere of religion."

Church [49] writes that Bacon—

"had the brightest, richest, largest mind but one, in the age which had seen Shakespeare and his fellows."

Later on he says:

"in temper, in honesty, in labour, in humility, in reverence he was the most perfect example that the world had yet seen of the student of nature, the enthusiast for knowledge."

In the introduction to Fowler's edition of the "Novum Organum" will be found a long list of testimonies by many writers to the extraordinary power that Bacon's teaching has had upon scientific thought and production. The chief claim that Bacon made for himself is quaintly expressed in the letter he wrote to Dr. Playfer:

"I have only taken upon me to ring a bell to call other wits together, (which is the meanest office) it cannot but be consonant to my desire, to have the bell heard as far as can be." [50]

Truly its peal has been heard all over the world and has reverberated for three centuries, and surely these references suggest that Harvey must have heard its call.

Bacon's Personality.

Having shown that Bacon's teaching was available to Harvey, was well known while he was a young man, and would be attractive to him, let us see whether the last is true also of Bacon's personality. Nobody is more likely to know him well than his secretary, Meautys, and his chaplain, Rawley. Both were devoted to him, and the first says his sole ambition is to grow up only under his Lordship and come what may to serve him with his life and fortune, laying down all he has at his feet.[51] The second shows us that Bacon must have been a delightful conversational companion.

"His meals were refections of the ear as well as of the stomach . . . . wherein a man might be refreshed in his mind and understanding no less than in his body . . . . In which conversations . . . . he was no dashing man, as some men are, but ever a countenancer and fosterer of another man's parts. Neither was he one that would appropriate the speech wholly to himself, or delight to outvie others, but leave a liberty to the co-assessors to take their turns." [52]

Tobie Mathew, son of the Archbishop of York, says of Bacon—

"It is not his greatness I admire, but his virtue. It is not the favours I have received of him that have enthralled and enchained my heart, but his whole life and character; which are such, that, if he were of an inferior condition, I could not honour him the less, and if he were my enemy I should not the less love and endeavour to serve him." [53]

Ben Jonson tells lovingly of his virtue and thus of his speech—

"No man ever spake more neatly, more pressly, more weightily; or suffered less emptiness, less idleness, in what he uttered . . . . No man had their affections more in his power. The fear of every man that heard him was, lest he should make an end." [54]

His secretary and apothecary, Boener, hoped that a statue of him would be put up, not because of his learning, but on account of his being "a memorable example to all of virtue, kindness, peacefulness and patience." [55]

We know a man by his friends. Bacon drew them from everywhere. There were many abroad and in this country Essex, Buckingham, Lancelot Andrewes, Selden, Bodley, Hobbes, Jonson, Mathew and George Herbert the poet who helped in the translation of the "Advancement" into Latin and who wrote verses in praise of Bacon who in his turn dedicated his versification of the Psalms to Herbert saying he was his affectionate friend. Bacon had few enemies, the chief was Coke, his professional antagonist. He was popular, as we learn from the fact that when he took his seat as Lord Keeper, besides the servants, the Judges and the Inns of Court, he was accompanied by most of the nobility, with other gallants to the number of 200 horse.

All this shows him to have been a lovable charming person with whom everybody would enjoy talking, and it is incredible that his physician did not converse with him and that he was ignorant of his teaching.

BACON'S HEALTH.

On the whole, Bacon's health was good; nevertheless he was a chronic dyspeptic, giving considerable thought to his symptoms and indulging abundantly in aperients. He has left us very particular accounts of how he took these and how they acted. [56]

In 1617 he had an illness thought to be gout, but it only lasted a few days. A contemporary letter [57] says, "he hath so tender a constitution both of body and mind that he will hardly be able to undergo the burden of so much business." This surmise was incorrect, for during the next four years Bacon worked very hard. Two years later he was away from work for a time probably owing to an attack of stone "which held him in great pain two or three days." [58] That he was very fond of taking medicine is shown by these and other references and by a letter written in 1623, which is of interest as having to do with the separation of the Company of Potycaries from that of Grocers; in it he says, "You may perhaps think me partial to Potycaries, that have been ever puddering in physic all my life." [59]

Bacon depended on his physician. When he was let out of the Tower he was not allowed to come within the verge of the Court, and thus he could not live in London. In some moods he thought the Tower preferable to such liberty, for he wrote in his petition to the House of Lords, "there I could have company, physitians," and he said the same in two letters to Buckingham, to whom, in a letter two years later, he again speaks of his physicians, whom he calls strange creatures. It is difficult to conceive a patient more likely to consult his physician frequently than one who was a chronic introspective dyspeptic, rejoiced in purgatives, had gout and a stone, especially as we have just seen that this patient was one with whom the physician would have delighted to talk, and many statements in Sylva Sylvarum suggest that Bacon often discoursed with doctors.

Further, apart from the relationship of patient and physician, Bacon and Harvey must have seen much of each other, for London was no bigger than a large provincial town of the present time, both move among the Court and nobility and both were in th small class of the well educated.

HARVEY'S MIND SIMILAR TO BACON'S.

I have now finished with what may be called th Baconian side of my argument. The Harveian sid will be much shorter. The philosopher said observ and experiment properly, deduce scientifically, withou attention to mere authority; no one could have don this more rigorously than the physician, whose min was in this matter the counterpart of that of th philosopher, for Harvey said to Ent—

"I have oftentimes wondered and even laughed at tho who have fancied that everything had been so consummate and absolutely investigated by an Aristotle or a Galen some other mighty name that nothing could by an possibility be added to their knowledge." [60]

In the introduction to his work on the "Generatio of Animals," he writes:

"Without the due admonition of the senses, witho frequent observation and reiterated experiment, our min goes astray after phantoms and appearances."

Further on:

"The method of investigating truth commonly pursu at this time therefore is to be held erroneous and almo foolish, in which so many inquire what others have sai and omit to ask whether the things themselves be actual so or not."

Or to take a passage from the introduction "De Motu":

"It will be proper to look more narrowly into the matte to contemplate the motion of the heart and arteries, not on in man, but in all animals that have hearts; and furth by frequent appeals to vivisection, and constant ocul inspection, to investigate and endeavour to find out truth

Really, except that the language has not the migh grandeur of that of Bacon, it might be he writin So do the minds of Bacon and Harvey jump togeth that we are constrained to believe that the eld influenced the younger, particularly when we recolle the other reasons already given for this belief.

VALUE OF EVIDENCE THAT HARVEY WAS NOT INFLUENCED BY BACON.

The view here put forward of the relationsh between them is not that held by many write several of whom speak of Harvey's contempt f Bacon, or state that he can owe nothing to hi Those who maintain the last have forgotten t "Advancement" and the history of the "Novu Organum." All who profess the first base it on t following. Aubrey [61] tells us—

"He (Harvey) had been physitian to the Lord Chancel Bacon, whom he esteemed much for his witt and style, b would not allow him to be a great philosopher. 'He wri philosophy like a Lord Chancellor' said he to me, speaki in derision; 'I have cured him.'"

Assuredly this anecdote does not justify the bel that Harvey was not affected by Bacon. Aubrey te us that it was not until 1651 that he became acquaint with Harvey, who was then 73 years old. Aubre statement is probably muddled for, as Bacon had be dead 25 years, Harvey most likely said "he wrot and for the same reason should have said "I cur him," and Aubrey does not make it clear whet Bacon was cured of a bodily ailment or of writi philosophy like a Lord Chancellor. Harvey, w according to Aubrey was very cholerique and w certainly aged, was speaking of a patient dead 25 ye before and, being cholerique, may easily, for m argument's sake, have taken the other side to Aubr in not allowing Bacon to be a great philosopher, a we must also remember that even if this were Harve deliberate opinion, others have thought so too, b have, nevertheless, considered that Bacon did m than anyone to point the way to the proper mode scientific research. We only have Aubrey's statem that Harvey spoke in derision of Bacon's way writing, but even if he did, he can only have mea

hat Bacon wrote in a stately, dignified, perhaps rather ontifical way; if he meant anything else he was ery foolish, for, as already shown, it was allowed hen Bacon was alive, and has been ever since, that ew can match his prose. Certainly there is nothing this story to suggest that Bacon did not influence Harvey; indeed, it is the other way, for he must have ead the philosopher before he could give an opinion as how he wrote, and we are told he esteemed his isdom and style.

But quite apart from this argument there is another ason why we should not pay any attention to this necdote—namely, that Aubrey is quite unreliable. e did not begin his "Lives" till 1680, when he put ch name in a book, then under it, when anything me into his head, he wrote hastily, without reference notes, his recollections of the person; this was sually done in the morning, often in the midst of ckness following a night's drunken debauch and rely revised. Harvey had been dead 23 years when is oft-quoted tale of what he said about Bacon, ho had been dead 50 years, was jotted down in this anner by a gossiping drunkard, who owns that he rote "tumultuarily." Look at it as we may, it is orthless as evidence as to what sway Bacon had over arvey. Indeed Andrew Clark, Aubrey's editor, says Aubrey's 'Lives' supply an inviting field for com- ent, correction and addition. But, even so treated, ey will never be a biographical dictionary. Their value s not in statement of biographical or other facts." [62]

It has been implied that, because Harvey is where mentioned by Bacon, we may infer that the o were not in accord. In a note-book of Bacon's der the date July 26th, 1608, he says he must ask r opinions about his scientific work from the ysicians Poe, Paddy, and Hamond, but there is thing to show that he ever did this. He would rdly have asked Harvey for he was then only years old and probably was, at that time, unknown Bacon.[63] I have looked through everything he rote, and it is clear that he was interested chiefly physical science, especially astronomy, but hardly all in physiology. Many phrases having a physio- gical bearing are to be found in his writings, but ey are all curious isolated statements, if an explana- n of them is given it is not Bacon's he merely produces the popular explanation. He collected ndreds of these statements for future investigation. st we now know to be fantastic nonsense.

"De Motu" was published in 1628; Bacon died in 26. Therefore he could not have alluded to the ok. Harvey in his Lumleian lectures began to ch his new views not earlier than 1616. But there no evidence that Bacon was ever present at these tures; indeed, from 1616 to 1620 he was at the very siest part of his career, and he certainly had no time n to attend lectures or to pay much attention to mours which might come to him saying that a great scovery had been made, especially as Harvey's periments were then unconfirmed; indeed, if con had asked doctors he would probably have n told that the new doctrines were nonsensical, for know that many of the medical profession did not nk Harvey's views worthy of discussion. So far m its being surprising that there is nothing in the "Novum Organum," published in 1620, about rvey's discovery which he began to teach, but only ally, some four years before, it would have been onishing if there had been anything.

In "The History of Life and Death," published in 23, Bacon says, "the blood is that which irrigates juices and membranes" and "the blood of the ins supplies the blood of the arteries." [64] It might thought that these sentences show that he knew nething of the circulation of the blood, but my strong inion, judging by the context, is that he still knew thing about it. Nor is this to be wondered at, for con, after his release from the Tower in 1621, lived onely life away from London, and so would not hear Harvey's lectures. To sum up, the neglect of Bacon mention Harvey is easily explained, and is of no lue as indicating that the two were antipathetical.

It may be said that I have brought forward no direct proof of any influence of Bacon on Harvey; all my evidence is circumstantial. But two things are to be remembered: first, circumstantial evidence is often much stronger than direct; secondly, how little we know of the daily doings of people who lived 300 years ago. Over and over again there is a reference in a letter to something Bacon had on hand, but of the outcome of which we are completely ignorant. Spedding writes:—

> "It is singular that of two men so remarkable in their several ways as Bacon and Coke, whose fortunes, objects, tastes, ideas, and dispositions crossed each other at so many points, and whose business must have brought them so continually into company and so frequently into conflict, the personal relations should be so little known. No anecdotes have been preserved by the news writers of the day which enable us to form a clear idea of their behaviour to each other when they met,—the style of their conversation, or the temper of their courtesies." [65]

This being so, it is not strange that we have no direct proof of Bacon's influence upon Harvey.

GILBERT'S INFLUENCE.

Everything goes to show that Harvey was regarded with affection by his own profession. He speaks of his "very dear friend Dr. Argent," we know of Ent's tenderness for and admiration of him, of Prujean's esteem for him. His generosity to this College tells us that the Fellows of it were his friends whom he much loved, but there is no indication that among these medical friends there was anyone of sufficient originality to help to mould Harvey's thoughts, with a single exception, namely, William Gilbert, one of the great original geniuses among the famous Elizabethans.

He was born in 1540 at Colchester, went to Cambridge, took his M.D. there, became a Fellow of St. John's, travelled abroad, settled to practise in London in 1573, ultimately living in Wingfield House, Peter's Hill. Sylvanus Thompson's [66] statement that his relations with English physicians were intimate and extensive must be correct, for Gilbert held several offices at this College, becoming President in 1600. He was well known outside his profession, for he attended many celebrated people and was physician to Queen Elizabeth; the story that she left him a legacy shows her liking for him. Gilbert and Dr. Lancelot Browne, in 1584, together signed a medical certificate which is preserved in the Records Office; in 1588 both were selected to advise the Privy Council about the health of the Navy, and Browne held various offices at the College of Physicians, so, in one way and another, he must have known Gilbert intimately. Lancelot Browne's daughter married Harvey in 1604. Gilbert died in 1603. Considering the close acquaintanceship between Gilbert and Browne, Harvey must have heard much of the first and quite likely he met him when he was courting; anyhow, it appears that he knew a good deal about him, for Sylvanus Thompson tells us that "according to Harvey, Gilbert expended no lesser sum than five thousand pounds on his researches." Therefore we may conclude that, for both professional and family reasons, Harvey would be inclined to pay attention to anything Gilbert said.

Gilbert's outstanding position is due to this—he broke away from tradition, he challenged authority, he went to Nature herself, investigating her by experiment, and he employed proper inductive reasoning. The first words in the preface of his famous book on the magnet are:—

> "In the discovery of secret things and in the investigation of hidden causes, stronger reasons are obtained from sure experiments and demonstrated arguments than from probable conjectures and the opinions of philosophical speculators of the common sort; . . . . But if any see fit not to agree with the opinions here expressed and not to accept certain of my paradoxes; still let them note the great multitude of experiments and discoveries; these it is chiefly that cause all philosophy to flourish; and we have dug them up and demonstrated them with much pains and sleepless nights and great money expense." [67]

This book made Gilbert the father of experimental philosophy in this island; it is the earliest known work treating of both magnetism and electricity; few finer examples of inductive reasoning have ever been presented to the world; there is abundant testimony that it produced a deep impression, not only in this country, but throughout the civilised universe: it places Gilbert on a level with Harvey, Galileo, Gassendi, and Descartes.[68] Galileo says:

"I extremely praise, admire, and envy this author for that a conception so stupendous should come into his mind. I think him moreover worthy of extraordinary applause for the many new and true observations he has made."[69 70]

Sir Kenelm Digby writes—

"by means of whom (Gilbert) and of Doctor Harvey our nation may claim even in this latter age as deserved a crown for solid Philosophical learning."[71]

Coming down to modern times C. W. Cooke[72] tells us that "De Magnete" inaugurated a new epoch in physical science, its author announced discovery after discovery, all made by a series of experiments conducted in a most philosophical manner. He was the first electrician, he was the first to investigate electrical phenomena, and the word electric was coined by him. Sylvanus Thompson considers that Gilbert made 20 separate experimental discoveries in electricity alone.

It will not be amiss, before we leave "De Magnete," to glance at the short reference to medicine to be found in it. In Book I., Chapters XIV. and XV., Gilbert[73] ridicules the medical nonsense which has been talked about the loadstone, such as that, in small doses, it preserves youth, that smeared with garlic it ceases to be active, that when pulverised and then buried in plaster it will draw an arrow from the body, that it will cure all sorts of headaches. He sums up by saying: "Thus vainly and preposterously do the sciolists look for remedies when ignorant of the true causes of things." Chapter XV. treats of the medicinal virtue of iron. Gilbert is aware of its use in chlorosis, for "it restores young girls when pallid, sickly, and lacking colour, to health and beauty." Malaria was very common in England in his time; hence we find Gilbert advising iron for enlarged spleen; the patients improved, probably because the iron benefited their anæmia. He notices that it is astringent. These are its only medicinal virtues. This is an excellent account of the therapeutics of iron, we know but little more now. Gilbert is very sarcastic about the many ridiculous claims made for it by doctors. He says:

"Thus do the smatterers cross swords together, and puzzle inquiring minds by their vague conjectures, and wrangle for trifles as for goats' wool, when they philosophize wrongly."

In Book II., Chapter III., he points out that Galen errs in believing that whatever agents draw out the venom of serpents exhibit the same power as the loadstone; he is emphatic that drugs do not act in this way. These extracts show him to have been what was very rare in his day—namely, a scientific physician, believing no more than he sees, and scornfully disbelieving the rubbish that passed for medicine.

The "Advancement of Learning" appeared in 1605, two years after Gilbert's death, so it cannot have been of use to him, and the only one of Bacon's writings which can have been published before 1600, when "De Magnete" appeared, is "Partus Masculus Temporis" (The Male Birth of Time), but the date of this, which is only a fragment, is doubtful. There is no trace of any acquaintance between Gilbert and Bacon, therefore we must admit that there is nothing to show that the last can have affected the elder; consequently the glory of being the first in this country, at any rate, to break through the bonds of authorities and to properly use experiments and induction belongs to Gilbert. Considering his professional position, his sound medicine, his close acquaintance with Harvey's father-in-law, the fact that his arresting book appeared just when Harvey was beginning his medical work, that it was just such as would appeal to the discoverer of the circulation, for it, by example and precept, taught that th right way to investigate nature was by experimer and induction, and that Harvey's recreation wa mathematics; bearing in mind all this it is nc unreasonable to believe that Gilbert helped to dire Harvey's thoughts.

THE ATMOSPHERE IN WHICH GILBERT, BACON, AND HARVEY LIVED.

Hitherto we have only considered Bacon, Gilber and Harvey individually, but in what atmosphe did they live? Sir John Edwin Sandys tells us that—

"the love of discussing on learned and philosophic topi was one of the characteristics of serious society in t Elizabethan age."[74]

Sir Sydney Lee and Dr. Furnivall both say that th era of Elizabeth was that of learned culture and desire for knowledge among large numbers of th people.[75] Several accounts have been given of th Society of Antiquaries, founded in 1572. It was great success:

"Peers and commoners, diplomatists and exchequ officials, heralds and city tradesmen, country and tov gentlemen, schoolmasters, lawyers and clergymen, all m together, week by week, to discuss archeological and co stitutional problems."[76 77 78]

At the same time there was another learned socie which met at Gilbert's house on St. Peter's Hill. S Humphrey Gilbert, half brother to Sir Walter Raleg laid before Queen Elizabeth a scheme for the erecti of "An Achademy for educacion of her Maiest Wardes and others, the youth of nobility and gentl men." It was to have been a real University London; there were to be dozens of well-pa teachers, including one in natural philosophy, a there was to be one doctor of phisic. His duties I w give in the old spelling. One day he was to reed phisi and another surgery, in the English tongue. He w never to alleage any medicine of any kind but th he was to declare the reason philosophicil of eve particular and he was to show how the medicine w made and all the instruments used in making The physitian was to practise surgery because the were very few good surgeons, for surgery was only to learned in barbers' shops, which was most dangerou The physitian was continually to practise with t Natural Philsopher to try and search out the riddles nature, they were to share a garden for the growi of simples and for this they were to have an ext allowance.[79]

Learning was evidently much in men's thoug and in their conversation. Therefore on this grou also, we may reasonably conclude that Harvey wou have knowledge of the teaching of Gilbert and Baco

Many who have written about the gloric Elizabethan renaissance have told us of its lite ture, its theatres, its politics, its statesmen, voyagers and its romance, but few have dw upon its science. Until the closing years of t great Queen's reign ignorance, superstition, tra tion, and false reasoning darkened understandi but then, as with other branches of human activi so with science, great lights arose in this country Gilbert, Bacon, and Harvey—men's minds awo the science of electricity was founded, we were tau how to reason and modern physiology was bo English science dates from these three who w contemporaries; fortunately they were not, l Galileo, Bruno, Servetus, and others, persecuted account of the novelty of their pronouncements. T Elizabethan era is an example of the well-kno singular phenomenon that there are periods in wh a cluster of geniuses appears, and this College justly be proud that two of its Fellows may be grou with Shakespeare and a few others among the grea Elizabethans. Harvey's supreme eminence am scientists is so well acknowledged that there is need for me to extol it. Rather have I tried to show th not only was he a star of the first magnitude himself, he was also part of one of the brightest constellati the world has seen. No man can certainly say w

nakes any man's mind, but, for the reasons brought orward in this address, it does seem likely that, as Harvey was the youngest of these three, the other two ad some directing effect, of which Harvey was erhaps unaware, in steering his thoughts correctly owards that goal, the reaching of which has made him ne of the great men of all time.

All three were parched with a thirst for knowledge, nd it would be difficult to find a better epilogue to his oration than a quotation from the "Praise of Knowledge," a masque written by Bacon and erformed before Elizabeth in 1592:

"Therefore no doubt the sovereignty of man lieth hid in nowledge wherein many things are reserved which kings ith their treasure cannot buy, nor with their force ommand; their spies and intelligencers can give no news f them; their seamen and discoverers cannot sail where hey grow. Now we govern nature in opinions but are thrall o her in necessities. But if we would be led by her in nvention we should command her inaction."

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Ingleby Lectures

ON

PLACE-IN-FAMILY AS A FACTOR IN DISEASE.

Delivered at the University of Birmingham

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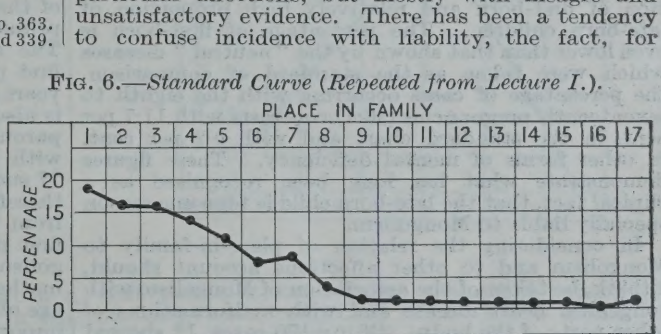
LECTURE II.*

IT will be well at the outset of this lecture, in which I propose to consider further the relationship of place-in-family to certain affections in children, that I should summarise the arguments and evidence with which the previous lecture was concerned.

That place-in-family may have some influence in determining liability to disease is not a new idea. Various writers have suggested it with regard to particular affections, but mostly with meagre and unsatisfactory evidence. There has been a tendency to confuse incidence with liability, the fact, for instance, that there is a much larger number of first-born than second-born in the statistics of any particular disease has been adduced as evidence of some special liability of the first-born regardless of the possibility that this predominance might be due to excess of first-born in the general population. It is only by comparing the place-in-family incidence of the particular affection with the place-in-family distribution of the general population that any conclusion can be formed as to any special liability attaching to place-in-family. Almost all the statistics which have been published on this point have omitted miscarriages and stillbirths from the order of pregnancies, so that what is recorded, say, as first-born may have been a third or fourth pregnancy or even later; a serious fallacy if, as seems at least possible, it is the occurrence or non-occurrence of previous pregnancies, whether they went to full term or not, which determines whatever influence place-in-family may have upon the offspring. The necessity of including miscarriages and stillbirths introduces a great difficulty in obtaining any reliable statistics of the general population to serve as a standard of comparison, for there is no official registration of miscarriages and until recently none of stillbirths.

FIG. 6.—*Standard Curve (Repeated from Lecture I.).*



The exact percentages indicated in Fig. 6 are: 18·5, 16·1, 15·4, 13·4, 10·8, 7·5, 7·6, 3·9, 2·1, 1·7, 1.6, 1·1, 0·7, 0·4, 0·1, 0·0, 0·1.

It was necessary, therefore, to obtain from some private source figures which were not subject to this fallacy, and I showed various charts which had been drawn up for this purpose, and gave reasons for selecting as the nearest approximation to accuracy statistics of certain diseases which might be regarded as "neutral" so far as my influence of place-in-family is concerned, and from these obtained a standard curve (Fig. 6). When, as a working hypothesis, a standard of comparison had been established,

* Lecture I. appeared in the last issue of THE LANCET.

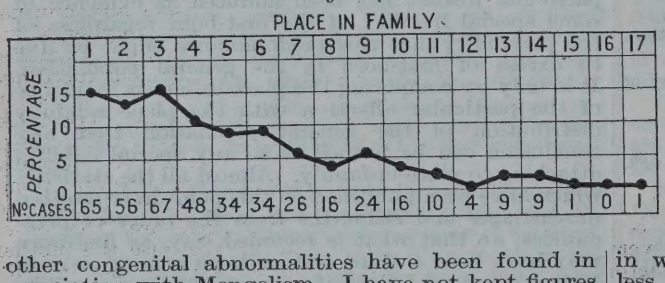
several affections of children were considered in turn, and it was shown by comparing the place-in-family incidence of certain affections with this standard that there is a special liability in the first pregnancy to abnormalities of development in the offspring. This was seen to be most striking in regard to congenital hypertrophy of the pylorus, but other congenital anomalies—viz., congenital heart disease, congenital malformations of various kinds, mental deficiency (exclusive of Mongolism), and probably epilepsy—were all found to show a similar relationship to the first pregnancy. A doubt arose with regard to the congenital spastic cerebral palsies because it is certain that some of these are due to intranatal causes rather than to antenatal, and my inquiry deals only with the influence of place-in-family in regard to conditions of antenatal origin.

MONGOLISM.

I pass on now to consider a particular form of mental deficiency with reference to place-in-family —namely, Mongolism. The chart in Fig. 14 comprises 420 cases (250 collected by Dr. J. Thomson, 170 by myself). It is seen to be in remarkable contrast with the curve shown by other forms of mental deficiency. Its special features are the comparatively low proportion of first-born and relatively high proportion of late-born children. The percentage of first-born is even lower than that shown by the "neutral" diseases which were taken as the standard of comparison, the percentage of cases occurring with the eighth to seventeenth pregnancies (20·4) contrasts with 11·7 per cent. in the standard chart and with 0·2 per cent. in other forms of mental deficiency. These figures demonstrate what has long been recognised as a clinical fact, that the late-born child is for some reason specially liable to Mongolism.

In considering the relation of place-in-family to Mongolism and to other affections account should, I think, be taken of the association of Mongolism with congenital heart disease and with malformations of other parts of the body. Of my 170 cases, 12 showed congenital heart disease—i.e., 7 per cent.—and other observers have found a much higher proportion, such as 15·7 per cent. (Thomson). A great variety of other congenital abnormalities have been found in association with Mongolism. I have not kept figures of the frequency of their occurrence, but in one series of observations (Thomson) it was 22 per cent. These associations make it probable that whatever may be the relationship between place-in-family and Mongolism the same holds good for the congenital heart disease or other abnormalities associated with Mongolism in these cases, and if the cause which underlies Mongolism can interfere with development so as to produce also these particular abnormalities, cardiac and otherwise, it seems likely that the same cause may also play some part in the production of developmental abnormalities apart from Mongolism.

FIG. 14.—*Mongols* (*420 Cases*).



This brings me to the significance of place-in-family, and first of all with regard to Mongolism. It is obvious that there are two factors which may be concerned in the special liability of the late-born to Mongolism—the number of pregnancies and the age of the mothers. Multiparity is certainly not essential to the production of Mongolism; amongst the 420 cases in Fig. 14 there were 65 cases belonging to the first pregnancy. But the large proportion of late pregnancies in comparison with that shown in the curves of other affections does at least justify the question whether the number of pregnancies has a greater influence than the age of the mother in determining the incidence of Mongolism on the late-born.

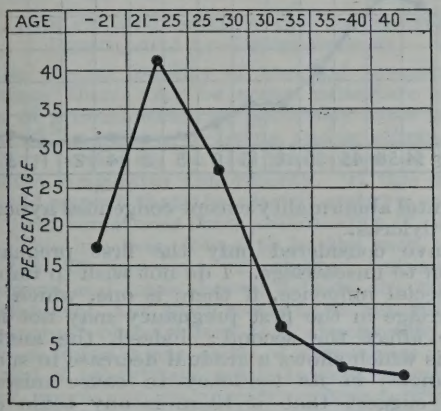
It is difficult to answer this by statistics, for obviously multiparity carries with it the probability of a more advanced age than is usual in the primipara. If it were found that when Mongolism occurred amongst the earlier pregnancies, such as the first or second, the age of the mother was usually higher than that of the average primipara or secundipara, this would point to the influence of age. I have notes of the age of the mother at the birth of a Mongol first-born in 26 cases; 19 of these were over the age of 30, including 11 of 35 years or older; the average was 33·3 years. As 56·5 per cent. of marriages (according to the Registrar-General's statistics for 1923) take place under the age of 25 years, and only 10·1 per cent. in women over 30 years of age, it is probable that the average age of the primiparous mother is considerably under 30 years; indeed, if the observations quoted by Matthews Duncan still hold good that the average interval between marriage and the birth of the first-born is about 12 months, the majority of primiparæ should be not more than 26 years old. The average age, therefore, of the mothers whose first pregnancy results in a Mongol is at least seven years above that of the majority of primiparæ. It is also about seven years above the age of the primiparous mother whose pregnancy results in a child with some other form of mental deficiency. In 77 such cases the average age was 26·2 years. So far therefore, as statistical evidence goes, it would seem from the comparative infrequency of Mongolism in first pregnancies, and from the fact that when Mongolism does occur in the child of a first pregnancy the mother is usually considerably beyond the average age of primiparæ, that the age of the mother is a more important factor in the production of Mongolism in the first-born than is the primiparity.

Again, if the special incidence of Mongolism upon the later children were due to the number of pregnancies which have preceded, rather than to the age of the mother, it might be expected that in the exceptional cases where a young woman less than 30 years of age produces a Mongol it would usually be found that she was a woman who had married early and had had at least three or four pregnancies before the Mongol. I have said "three or four pregnancies," but this is merely hazarding a guess at the number, if any, which might be thought to favour the occurrence of Mongolism. Actual figures taken without regard to the age of the mother (as in Fig. 14) prove that in 63·9 per cent. of the families in which Mongolism occurs there have been no less than three children before the Mongol, and in 52·5 per cent. not less than four children preceding the Mongol. This may be contrasted with some of the "neutral" diseases described in the previous lecture; for instance, in diarrhœa and digestive disorders, of 1000 cases 45·7 per cent. occurred in a child preceded by not less than three pregnancies and 32·8 in children preceded by no less than four pregnancies, and the corresponding figures in 400 cases of broncho-pneumonia were 49·7 per cent. and 37·45 per cent. A comparison of these figures justifies the expectation that if the number of antecedent pregnancies is an important factor in the causation of Mongolism, we should find that at least a considerable proportion of the mothers who gave birth to Mongols before they are more than 30 years old would have had three or four pregnancies before it.

I can only produce very small figures on this point because women under 30 years of age comparatively rarely produce Mongols. I have notes of 17 cases in which the mother of a Mongol was not more than

30 years old when the child was born; only three of these had had three children or more previously, eight of them were primiparæ, and five had had one previous pregnancy. So far, therefore, as this small number of cases is any criterion, it does not show that the number of antecedent pregnancies is particularly high in cases where the mother of a Mongol is exceptionally young, and it gives therefore no support to the view that the occurrence of Mongolism is due to the number of previous pregnancies. From these various considerations the conclusion seems to be justified that the influence of place-in-family in regard to Mongolism is only indirect; it is the age of the mother rather than the number of the particular pregnancy which determines the occurrence of Mongolism. This conclusion, it must be pointed out, throws no light upon the clinical fact that when a Mongol has occurred, whether early or late in the family, any subsequent children almost never show Mongolism.

FIG. 15.—*Age at Marriage in General Population.*



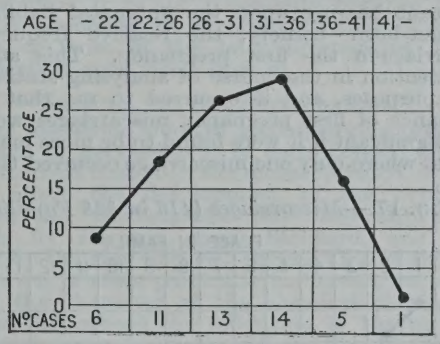
INFLUENCE OF THE MOTHER'S AGE.

In considering the occurrence of Mongolism in the first-born, I have shown that in that condition primogeniture was comparatively infrequent and that when it occurred it was probably of less importance in causation than the age of the primipara. How far is this true of other conditions? If the conclusions already reached are correct as to the special liability of the first-born to various congenital anomalies, is this because of the age of the mother or is it because primigravidity has some special influence per se, independent of the age of the mother? Primigravidity as a general rule implies comparative youthfulness of the mother, and the special incidence of any affection upon the first-born might, therefore, very naturally suggest that the chief, if not the only, factor in causation was the youthful age of the mother or as some writers have expressed it, her immaturity. If this is so the proportion of mothers of comparatively youthful age should be higher amongst those whose first pregnancy results in a child with some congenital malformation or abnormality than amongst the primiparæ of the general population.

In the Registrar-General's report for 1923 the age at marriage in the general population of England and Wales was: Up to 21 years, 15·3 per cent.; 21 to 25 years, 41·2 per cent.; 25 to 30 years, 27·9 per cent. (Fig. 15.) So that more than half the marriages occur under 25 years of age, and assuming Matthews Duncan's estimate to be correct that on the average the interval between marriage and the birth of the first-born is one year, one might suppose that at least 50 per cent. of primiparous labours would occur under the age of 26 years. There is some correction to be made for sterility, but to quote Matthews Duncan again, "those married at ages from 20–24 inclusive are almost all fertile," whilst of women married under 20 years of age about 7 per cent. are sterile. The correction to be made, therefore, is very small. In 50 cases of congenital deformities, including congenital heart disease, all occurring in first pregnancies, I have noted the age of the mother at the birth of the child and have reduced the numbers at the various ages to percentages which are shown in the chart (Fig. 16) so as to facilitate comparison with the average age at marriage.

It will be seen that so far from the proportion in the younger age-groups being higher than in the general population, it is decidedly lower, and the proportion in the later age-groups is actually higher than in the general population. So far, therefore, as these small figures are reliable there is no evidence that the special liability of the first-born to congenital abnormalities such as congenital heart disease, hare-lip, cleft palate, hydrocephalus, congenital hypertrophy of the pylorus, congenital deformities of limbs, &c., is due to the mother being below the average age of a primipara; or to put it in another way, there is no evidence that immaturity of the mother plays any part in the production of these abnormalities. Indeed, these figures rather suggest that an age above the average age for primigravidity is more favourable to these perversions of development than any unusual youthfulness of the mother. Moreover, in view of the frequent association of various congenital anomalies with Mongolism it seems probable that advanced age of the mother may be a factor also in the causation of congenital anomalies when they are not associated with Mongolism. If this is the case, and if, therefore, there are two factors in the production of congenital anomalies pulling, so to speak, in opposite directions, the one towards the first place-in-family because of the special influence of primogeniture, the other towards the late place-in-family because the mother is then reaching advanced age, the fact that in spite of these opposing tendencies there is such a remarkable predominance of first-born with congenital anomalies emphasises even further the influence of primogeniture.

FIG. 16.—*Maternal Age at Birth of Congenitally Deformed Child.*



INFLUENCE OF PRIMIGRAVIDITY.

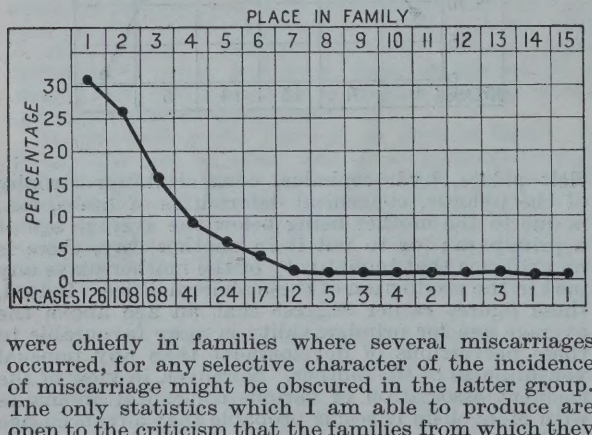
Is there any evidence then that independently of the age of the mother the first pregnancy is at a disadvantage? So far as the nutrition of the fœtus is concerned there is undoubtedly a tendency for the first pregnancy to fare badly. It is a common observation that the weight and length of the first-born are commonly less than those of subsequent children; various observers have published figures demonstrating this, notably Dr. Matthews Duncan (loc. cit.) who also discussed its relationship to primogeniture. He held that this relative deficiency in weight and length was directly dependent upon the age of the mother, whereas Hecker had regarded it as due to primogeniture per se. Subsequently, Hecker partly adopted Dr. Matthews Duncan's view, but with the reservation that age was not the only

factor—some influence must be exerted by primogeniture. It was recognised by these observers also that although on the whole there is much uniformity in the weights of the children of the subsequent pregnancies, there is in the later pregnancies a tendency to a decrease in the weight of the child, a fact which may not be without its significance in regard to the occurrence of anomalies of development in these later pregnancies. Comparative physiology gives some confirmatory evidence on these points; chicks from pullet's eggs are, on the whole, smaller than chicks from hen's eggs; a first litter of pigs is commonly smaller in number and smaller in size than later litters; with rabbits also a first litter is apt to consist of smaller rabbits than a later one. Again, one may compare with the production of Mongols in late pregnancies the production by hens of eggs containing no yolk when they make their last efforts at laying.

MISCARRIAGE IN THE FIRST PREGNANCY.

There is another fact which may have a still more important bearing upon the antenatal liabilities of the first-born—namely, the relative frequency of miscarriage in the first pregnancy. This attracted my attention in the course of analysing statistics for other purposes, and it occurred to me that a predominance of first pregnancy miscarriages would be more significant if it were found to be more marked in families where only one miscarriage occurred than if it

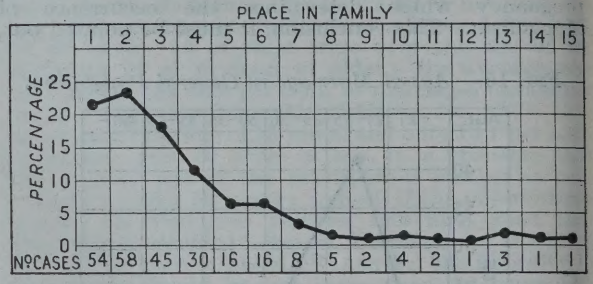
FIG. 17.—*Miscarriages (416 in 328 Families).*



were chiefly in families where several miscarriages occurred, for any selective character of the incidence of miscarriage might be obscured in the latter group. The only statistics which I am able to produce are open to the criticism that the families from which they were taken were not in all cases completed families. My impression is, however, that though statistics entirely free from this fallacy might alter the percentages to some extent, they would still show the same peculiarity in the incidence of miscarriage. It is seen that in 170 families when there was only one miscarriage this occurred in the first pregnancy in 42·3 per cent. of the cases, whereas in families in which there was more than one miscarriage the first pregnancy was affected in 22·1 per cent. of the cases. If there is no particular pregnancy which is more liable than any other to miscarriage, there seems to be no reason why the place-in-family incidence of miscarriage should not be identical with the place-in-family distribution of the general population, but if there is some special tendency to miscarriage in the first pregnancy, then the inclusion of the families in which only a first pregnancy miscarriage occurs will exaggerate the incidence on the first-born just as would the inclusion, say, of cases of congenital hypertrophy of the pylorus in a series of neutral diseases, especially if the pylorus cases were in the undue proportion which occurs, for instance, in the case notes of a children's physician.

A comparison of the three charts given here seems to bear out the view that for some reason there is a special liability of the first pregnancy to miscarriage; the chart (Fig. 17), including all miscarriages, shows 30·4 per cent. in the first pregnan cy,a figure considerably above the proportion of first pregnancies in the general population, in those statistics which, as I showed in my first lecture, could fairly be taken as a standard. If the families are excluded in which there is only one miscarriage the proportion of miscarriages is then 22·1 per cent. (Fig. 18) in the first pregnancy, which approximates to the proportion of first pregnancies in the standard curve of the general population, 18·5 per cent., whilst the chart of the families in which there is only one miscarriage (Fig. 19) shows an incidence on the first pregnancy of 42·3 per cent., a proportion higher than that shown by any

FIG. 18.—*More than One Miscarriage (246 in 85 Families).*

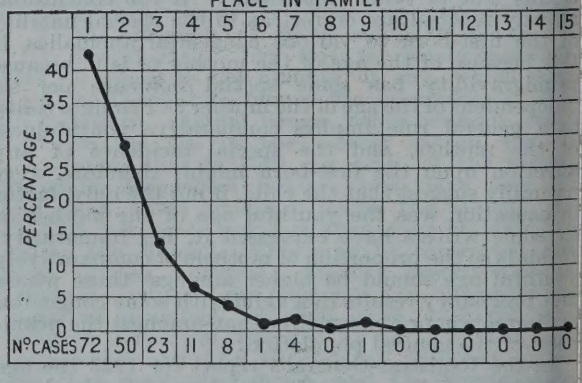


congenital abnormality except congenital hypertrophy of the pylorus.

I have considered only the first pregnancy in relation to miscarriage. I do not wish to imply that the special influence, if there is one, which favours miscarriage in the first pregnancy may not in some degree affect the second; indeed, the analogy of syphilis which shows a gradual decrease in successive pregnancies in its tendency to cause miscarriage, would suggest that if there is any toxic element specially favouring the occurrence of miscarriage in the first-born this might extend in some degree beyond the first pregnancy. Here, however, I am concerned with the first chiefly, and the figures already given furnish at least ground for supposing that there is in the first pregnancy some influence at work in the mother which makes this particular pregnancy specially liable to miscarriage.

It is more than possible that such an influence might in some cases result not in miscarriage but in

FIG. 19.—*Single Miscarriages (170).*



the death of the fœtus so that it would be stillborn. This possibility would be analogous to the effect of parental syphilis, which, as is well known, often produces at first one or more miscarriages and then a stillbirth premature or at full time before a living child is born. Stillbirths, therefore, may be another manifestation of the special influence, whatever it may be, which favours the occurrence of miscarriage in the first pregnancy. It is not suggested that stillbirth in the first pregnancy is usually the result of any such cause, it is certainly not! The mechanical difficulties of a first labour are undoubtedly the most frequent cause of the stillbirth; nevertheless, there

are cases in which there is no such mechanical cause, and, indeed, death of the fœtus has occurred before labour began. I have no figures to show whether this death of the fœtus before labour is relatively commoner in the first pregnancy than in later pregnancies, but stillbirths are certainly much commoner in the first than in the later pregnancies. In the 328 families already mentioned there were 74 stillbirths, and of these 36—i.e., close on 50 per cent.—were in the first pregnancy. I do not suggest that miscarriage is always a morbid process, but it certainly is in some; I have already instanced the effect of syphilis. On the other hand, it does not seem likely that miscarriage, when occurring apart from obvious disease, is a merely fortuitous occurrence. No doubt there are many miscarriages which are due to purely accidental causes, physical or psychical, but there remains a considerable proportion which cannot be explained in this way.

Relation of Miscarriage and Stillbirth to Perversion of Development.

In the special liability of the first pregnancy to miscarriage there may be some indication of perversion of process which in particular cases leads to ejection of the embryo or fœtus, and in others, where pregnancy continues, to the production of a child with some congenital abnormality. If this were so one would expect that the ejected embryo or fœtus would itself sometimes show abnormality of development. This has been found to be the case. Mall[1] found that 38 per cent. of aborted fœtuses were pathological and some showed definite abnormalities of development, and there seems to be general agreement amongst obstetricians that abnormality in the embryo or fœtus is one cause of miscarriage; if this is so, and if miscarriage tends to occur specially in the first pregnancy, we may have here further confirmation of the special tendency to abnormalities of development in the first pregnancy.

I know of no observations on the frequency of abnormal embryos or fœtuses in relation to place-in-family of the pregnancy. Routine investigation of the products of miscarriage and stillbirth from this point of view might give valuable information. It is a pity that these are often treated as negligible items in the reproductive history of a woman; it is possible that they might furnish some useful clue to the problem of developmental abnormality. If, as the figures already shown suggest, there is a special liability to miscarriage in the first pregnancy, how far is this predominance due to special frequency of abnormalities in the embryo or fœtus, and how far are both the result of some perversion of reproductive metabolism to which primigravidæ are specially liable? Unfortunately, upon this point, which may be nearer to the root of the whole problem of congenital abnormalities than we know, I can throw no light.

It is true that the impregnated ovum meets with conditions in the uterus of the primigravida which are peculiar to the first pregnancy; it finds a uterus in which there is as yet no enlargement or thickening of the arteries for the increased requirements of blood-supply, no modification of the venous channels by the involution processes of former pregnancies; all these have yet to be acquired; the environment is special, and at first sight one might imagine that the peculiarity of the first pregnancy in these respects might influence not only the continuation of the pregnancy but also the development of the embryo and fœtus. But even if it be granted that differences in the conditions of blood-supply may affect the nutrition of the embryo and fœtus, this is not necessarily any explanation of perversion of development. There is reason for thinking that the causes of developmental abnormalities lie deeper than mere difference of blood-supply.

The selective character of congenital abnormalities in some cases and their hereditary character in others seem to argue some altogether subtler and more profound influence. By "selective" I mean the tendency to fix upon particular structures in particular families; for instance, I have notes of one family in which there were only two pregnancies and both had congenital hydrocephalus; in another family there were two children with syndactyly, in another two with congenital heart disease, and in another I saw a boy who was said to be one of three who had congenital heart disease out of a family of 13; more striking examples are on record of six and seven children with congenital hydrocephalus, and in one instance six successive premature infants, and then three full time, all nine having congenital hydrocephalus (Göhlis). In most of the examples I have quoted—and, as I mentioned in my previous lecture, the occurrences of congenital deformities in more than one member of a family is uncommon—the malformation occurred in the first pregnancy and was repeated in subsequent pregnancies, so that whatever the influence may be which determines the special liability of the first pregnancy, to such abnormalities, it is not necessarily confined to the first; it is sometimes so profound that it extends to one or more of the later pregnancies, though fortunately it very rarely does so.

Toxæmia in the Primigravida.

If the metabolic changes accompanying pregnancy are liable to perversion it is quite conceivable that some chemical change in the mother's blood or tissues might affect the development of the ovum and embryo, and the experimental observations upon animals by Hertwig, Loeb, Stockard, and others quoted by Dr. Mall (loc. cit.) suggest that such a cause might even produce particular malformations according to the character of the chemical change. On such an hypothesis the repetition of the particular congenital anomaly in several children of the same mother would be intelligible. This view might also throw some light on the special liabilities of the first pregnancy, for it is known that there is a special tendency to the grosser toxæmic states in the primigravida. Recent figures taken on a large scale by independent observers[2] have shown that 74 per cent. of the cases of toxæmia in pregnancy occur in primigravidæ. This incidence, like the special tendency to abnormalities of development in the first pregnancy which I have shown not to be dependent upon any special youthfulness of the mother, is not dependent upon her age; "primigravidæ," says Dr. G. FitzGibbon,[3] are more liable to toxæmia than multiparæ, but the age of the primigravida has no influence on its development." This high percentage, 74 per cent., compared with the standard proportion of first pregnancies, proves, I think, that so far as the grosser forms of toxæmia which produce unequivocal symptoms in the pregnant woman are concerned, there is a marked special liability of the primigravida. If this is so it seems at least possible that the primigravida may also be specially liable to toxic states of less pronounced degree which, without producing obvious effects in the woman, may adversely affect the ovum or embryo. I would suggest that in some such special tendency of primigravidæ to a toxic state we may have an explanation in part at least of the special liability to congenital abnormalities in the offspring of the first pregnancy.

I have said "in part," for it is evident that even so far as the first pregnancy is concerned, place-in-family is not the only cause of congenital anomalies; advanced age of the mother is sometimes a factor, as shown in cases where Mongolism occurs in a first-born and probably in some cases where other congenital anomalies occur in the first-born of an elderly mother, for as I have shown the association of such anomalies with Mongolism in a late-born child seems to indicate that the age of the mother can be responsible for them also.

But surely there are other factors concerned in the problem of place-in-family even less capable of demon-

[1] F. P. Mall in Keibel's Manual of Human Embryology, p. 207.

[2] Jour. of Obstetrics and Gynæcology of Brit. Empire, 1923, xxix., 390.

[3] Ibid., p. 404.

stration than those I have considered. Is it likely that the reproductive process is exempt from those irregularities which characterise other functions of the body at their inception and at their decline? Imperfect function at first, failing function at last, this is so well ascertained an order of physiological events in respect of other processes that it may well apply also to the reproductive process and so be to some extent at once an explanation and a confirmation of the relation between place-in-family and developmental anomalies. Certainly Nature's first experiment at reproduction is more often a failure than her later ones; and when the reproductive period is nearing its close, Nature is again prone to failure, and if miscarriage and developmental anomalies are so closely connected as I have suggested, it may be that the special liability to miscarriage in the first pregnancy is more often a boon than we know: Nature thereby may be throwing aside the imperfect result of her first effort.

INTERVAL BETWEEN PREGNANCIES.

I pass now to another point which I think merits more attention than it has received. I know of no published reference to it, though I know from conversation with colleagues that it has not been unnoticed. I refer to the occurrence of some congenital abnormality in the child born at an unusually long interval after the preceding pregnancy. What may be the interval which encourages this risk I am not prepared to say. I have noted particularly cases with six years or longer interval; possibly the risk, if it exists, may be proportionate to the length of the interval; certainly in many of them it is eight or ten years or even longer. The occurrence of a long interval before the abnormal child is particularly noticeable in Mongolism. I have notes of several cases with 10, 11, and 12 years interval between the previous pregnancy and the Mongol, and of others with five, six, or seven years interval. This is by no means limited to Mongolism. I have noted it, though less frequently, in other forms of mental deficiency, and in various congenital abnormalities and deformities. Many of my records were taken before this point had attracted my attention so I am unable to offer any opinion as to its frequency, and it is essential that the frequency of its association with abnormality of the offspring should be compared with the frequency of similar intervals where the offspring are not abnormal, before any conclusion can be drawn as to a causal relation.

In the absence of sufficient statistics to have any evidential value, I can only draw attention to the possibility that pregnancy separated by an unusually long interval from the preceding pregnancy involves some special risk of abnormality in the offspring. If this is so its explanation must be intimately related to the whole problem of the causation of congenital abnormalities. It might be argued that the age of the mother is advanced to the extent of the interval and that it was because of advanced age and not because of any other influence of the interval that the abnormal offspring resulted. I have notes of cases in which the long interval occurred quite early in the reproductive history of the mother, so that in these at any rate the abnormality of the child could hardly be due to the age of the mother. Possibly the interpretation of this occurrence may be that the longer the interval the closer the return to the conditions of primigravidity, so far as those special influences are concerned which render the primigravida specially liable to have abnormal offspring.

In conclusion, let me say that in these lectures I have tried to accumulate facts which might help towards an understanding of one, at any rate, of the antenatal factors entering into the production of congenital abnormalities—namely, the influence of place-in-family; but I realise that this is only one factor, perhaps only a predisposing factor; the fundamental causes lie deeper. At present we can only feel our way towards them groping in the half-light towards the truth.

A CLINICAL STUDY OF THE ALKALI TREATMENT OF SCARLET FEVER.

BY E. H. J. BERRY, M.B., M.R.C.P. LOND.

DURING the treatment of nephritis of all types A. Osman [1] noticed that when an acid urine was made alkaline the amount of albumin passed was lessened and the amount of urine passed was increased, with a corresponding improvement in the patient's general condition. While working along these lines, he encountered a case of anuria caused apparently by a large doses of sanocrysin. The anuria was overcome after large doses of alkalis, and the patient recovered. To determine whether this principle of rendering the urine alkaline was effective in nephrites other than those caused by metallic poisons, he determined to try the treatment in scarlet fever, of which abundant material would be available. A short résumé of his results was given in an address to the Royal Society of Medicine, in which he stated that the incidence of cases of albuminuria and nephritis had fallen from 5·5 per cent. to 0·6 per cent.[1] These figures are so remarkable that they demand further investigation; there can be no doubt that a new and valuable principle in treatment has been discovered.

In the past, alkalis have been given empirically as diaphoretics for febrile disturbances such as occur in the exanthemata. They were thought to be "cooling" medicines, and there was no clear conception as to how they acted and why they undoubtedly did good. Now that the urine is being tested for acidity and alkalinity, it seems that in most cases these drugs were not being given in sufficient quantities, and that because their manner of action and effects on the urine were unknown, their administration was not properly controlled.

Before the introduction of salicylates, rheumatic fever was treated by large doses of alkalis, and even now, as Osler states, improvement in the condition of the patient takes place as soon as the urine becomes alkaline.

That alkalis tend to prevent the onset of nephritis in scarlet fever has been proved beyond doubt, but that the alkali treatment is also of value in the prevention of other complications and as a curative measure has apparently escaped notice. If alkalis prevent the onset of one toxic manifestation, and the various complications of scarlet fever are due to one particular scarlatinal toxin acting on tissues of varying resistance, it is reasonable to suppose that they would prevent the onset of other manifestations possibly toxic in origin, such as, for example, scarlatinal rheumatism.

From the following figures I wish to show that albuminuria and rheumatism are closely related, and that, in preventing the onset of one, we can prevent the onset of the other.

Reliable figures of the crippling effects of rheumatic fever on the heart were given by Cheadle in 1889. He stated that 72 per cent. of children suffering from rheumatic fever showed cardiac lesions. Sir Thomas Horder, in 1926, quoted the conclusions which Church made over 40 years ago. These are practically the same as those quoted by Cheadle, but Church adds that cardiac and lung complications were at that time diminishing. Cardiac complications do not occur so frequently in scarlatinal rheumatism, but they are present to the extent of 17·3 per cent. If it can be proved that the alkali treatment can prevent or lessen the incidence of scarlatinal rheumatism, then the beneficial effect of the alkali treatment is indeed very great.

The treatment of scarlet fever, until the recent introduction of anti-scarlatinal serum, was entirely symptomatic and empirical. I have not been able

[1] Proc. Roy. Soc. Med., 1927, xx., 1405; see THE LANCET, 1927, i., 971 and 1107.

o try American anti-scarlatinal serum, but have ısed British serum. The results, in my hands, have ıot corresponded with those of Gardner Robb,[2] ınd, on the whole, have been unsatisfactory. The lkali treatment has given much better results.

For this article a study has been made of all the ases of scarlet fever which were admitted to Joyce reen Hospital in 1926. There is a convention in his hospital of calling those cases where albumin lone appeared in the urine, cases of albuminuria, nd those cases in which the urine contained blood nd albumin, cases of nephritis. To my mind the ifference is only one of degree. Nephritis may rst manifest itself by the appearance of blood and lbumin in the urine; in other cases the urine will rst contain albumin and later blood. Others, gain, may have intermittent albuminuria and lood in the urine later. These manifestations may ccur at any time of the disease, from admission to ıe sixth week, but the majority of cases occur in ıe third week. Therefore, to divide cases into buminuria and nephritis seems to serve no useful inical purpose. All cases of albuminuria are actually potentially cases of nephritis. No laboratory ethod of estimating the urinary pH was employed; ıe alkalinity or acidity of the urine was determined litmus paper. The urine tested was that first ıssed in the morning, before breakfast.

In 1926, 2819 cases of scarlet fever were admitted Joyce Green Hospital. No attempt has been made separate cases of febrile albuminuria from cases toxic albuminuria. Excluding those which veloped another infectious disease before the pearance of albuminuria, there were 303 cases of buminuria and nephritis—i.e., 10·6 per cent. xty-nine cases developed rheumatism—i.e., 2·5 per nt. Of these, 19 had albuminuria. Thus the rcentage of rheumatic cases having albuminuria ıs 27·5. These figures show the close relationship tween albuminuria and rheumatism.

The total number of cases showing cardiac com-cations was 46—i.e., 1·5 per cent. The number albuminuric cases showing cardiac complications, d in whom no rheumatism was present, was 4—, 1·3 per cent. Thus, albuminuria does not appear increase cardiac complications. The total number rheumatic cases showing cardiac complications vs 12—i.e., 17·3 per cent. Thus there is a direct ationship between rheumatism and endocarditis.

A review of the first 100 cases treated by alkalis es some very interesting information. The patients ated were not selected cases. Their ages varied m $1^{11}/_{12}$ years to 25 years. The object was to make urine alkaline as quickly as possible and to keep alkaline for three weeks, during which time the ient was kept in bed. Of these 100 cases, one veloped albuminuria and rheumatism, and one veloped albuminuria while on alkalis. The mixture en contained gr. 40 of pot. cit. and gr. 40 pot. arb. to the ounce of water.

ASE 1.—A young soldier, aged 15, admitted April 8th, 7, with a severe attack of scarlet fever. His urine was le alkaline on the second day, and remained so for three s on half ounce of the mixture. On the sixth morning it tained a faint trace of albumin; reaction still alkaline. dose of alkalis was doubled, but next morning the urine acid and he complained of joint pains. The mixture increased to 1½ ounces. Next morning the urine aline and remained so on the same dose till the patient discharged. Albumin was present in the urine for days; there were no casts. The urinary diastase was mal and the blood urea was also normal. He had, admission, a faint systolic apical bruit, but with the earance of rheumatism it became more pronounced. re were signs of early phthisis at the right apex. He since been invalided out of the army.

ASE 2.—A child, aged 5, was admitted on Dec. 31st, . She was given 2 drachms of the mixture, but the e remained acid on this dose, and on Jan. 3rd the urine ained a trace of albumin. Six drachms of the mixture given. The urine became alkaline and albumin-free an. 7th. She later developed left otorrhœa but no other plication.

Three cases who were given the mixture for three weeks developed albuminuria after the alkalis had been stopped. One developed rheumatism 20 days after the mixture had been stopped, and albuminuria next day. Alkalis were again given and the urine became albumin-free in four days. Another had, for three days, a faint trace of albumin six days after the mixture had been stopped. The last case developed albuminuria the day his urine became acid. He was transferred from my care and was not given alkalis, but he was discharged well.

It seems obvious that alkalis should be given all the time the patient is considered infectious, especially as nephritis may develop late in the disease. Had the urine of all patients been kept alkaline during their stay in hospital, it is possible that albuminuria would not have developed in three cases. Five per cent. of these cases developed albuminuria, two while on alkalis and three after the alkali course of three weeks had ended. Two per cent. had rheumatism, one while on alkalis, the other after the alkali course was finished.

In Case 1 it is worth noting that when albumin appeared the dose of alkalis was doubled, but in spite of this the urine next day was acid—i.e., the condition of acidosis had increased considerably with the onset of albuminuria.

I have seen the same thing occur in several cases of scarlatinal nephritis. When nephritis developed the urine was made alkaline on a certain dose of alkali; suddenly the urine would become acid and the patient develop joint pains. The dose of alkalis had to be increased considerably before the urine again became alkaline. There would seem to have been a sudden rise in the toxins of the blood, sufficient to cause an acidosis, and a degeneration of some part of the renal tissue.

The curative value of alkalis is most marked in toxic cases. It is not uncommon to see a child with a badly-developed rash, semi-comatose, semi-delirious, with a dry, peeled, cracked tongue. The urine of these patients always contains acid radicles when tested by the ferric chloride test, even when the child has had plenty of carbohydrate. If such a case be treated energetically with alkalis the change in 24–36 hours is very marked. The urine no longer gives a ferric chloride reaction; the tongue becomes moist; the rash becomes vivid; delirium disappears, and the child sits up in bed and takes an interest in the happenings of the ward. The temperature falls by crisis. If the child cannot swallow, the alkalis must be given by the rectum. The quantity of alkalis required to make the urine of a toxic case alkaline is surprising. One child, aged 5, required gr. 640 in 24 hours. I have not seen such a marked change as that portrayed above follow the use of serum.

So convinced am I of the beneficial effects of alkalis in toxic cases of scarlet fever, that I consider all toxæmic cases, from whatever cause, should be treated in a similar manner.

Conclusions.

(1) It has been proved that alkalis very considerably lower the incidence of nephritis. (2) Scarlatinal rheumatism and albuminuria are related to the extent of 27·5 per cent. (3) Scarlatinal rheumatism and endocarditis are related to the extent of 17·3 per cent. (4) Since albuminuria and rheumatism are so strongly related, and the incidence of nephritis can be lowered by alkalis, then it is reasonable to suppose that the incidence of scarlatinal rheumatism can also be appreciably lowered by the alkali treatment. (5) If the incidence of scarlatinal rheumatism can be appreciably diminished, it follows that the incidence of cardiac complications can be lessened. (6) In the acute stages of scarlet fever, if alkalis be given in sufficient doses to render the urine alkaline, great improvement in the patient's general condition results.

I am indebted to Dr. A. F. Cameron, medical superintendent of Joyce Green Hospital, for his kind permission to carry out this work in his hospital, and to the sisters for their willing coöperation.

[2] Brit. Med. Jour., 1926, i., 11.

THE TREATMENT OF THE PARKINSONIAN SYNDROME, FOLLOWING ENCEPHALITIS, BY MALARIA.

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TREATMENT of the after-effects of encephalitis has, so far, proved unsatisfactory. Owing to the considerable degree of improvement which may follow malarial infection in general paralysis of the insane, it was felt justifiable to ascertain the results in encephalitis. Belladonna, hyoscine, parathyroid, and iodides undoubtedly tend to make the patient infinitely more comfortable—more particularly, perhaps, in reducing the constant flow of saliva which is such an unpleasant and constant feature of the Parkinsonian state. They are, however, purely palliative and do not in any way arrest the progress of the disease.

It is possible that the after-effects of encephalitis, such as the Parkinsonian state, are due to damage of the basal nuclei and great correlating centres in the mid-brain during the acute phase of the disease. If this is so, no improvement could be hoped for by treatment, as the damage has already been done. On the other hand, there is a feeling that the Parkinsonian state may be due to a gradual invasion or extension of the disease into the mid-brain, and that the disease is still active. The involvement, in some cases, of the anterior horn cells and perivascular cuffing with lymphocytes rather suggest that the disease is still active. Though the Parkinsonian syndrome may predominate, certain of these cases have such a complex syndrome that it is almost impossible for the lesions to be entirely confined to the mid-brain alone.

It was on the supposition that the disease might be still active that this treatment was undertaken, in the hope that further extension might be arrested and that, if the axon itself had not actually been destroyed, some improvement might take place.

Eight cases have been treated by this method. They were selected from the neurological out-patients in Exeter, the Torbay Hospital, and from private practice. All of these cases had an attack of encephalitis within the last three years, except one case which had the acute attack eight years previously. All had the Parkinsonian syndrome, to a greater or lesser degree, with bradykinesia, tremors of the hands, rigidity of the trunk, excessive salivation, and slow cerebration. There was a varying degree of mental involvement, which is outlined in each individual case. All had diplopia at the time of the acute onset.

Technique.

The technique used was as follows. All the cases were inoculated directly by anopheles mosquitoes infected with a known strain of benign tertian malaria. The mosquito was allowed to inoculate the patient on the thigh through small meshed gauze over a glass beaker in which it was contained. The period of infection varied very considerably—from the twelfth to the twenty-second day after infection. Once this had taken place the temperature mounted with each successive rigor from 99° F. on the first, 100° on the second, 101° on the third, to 105° on the fourth day. The blood was controlled at varying intervals to check the progress of the malaria in order that any very considerable excess of parasites might be foreseen. The temperature was taken every quarter of an hour, during a rigor, until the highest point had been reached and the temperature began to fall. This, though tedious, is an extremely important part of the technique, in that the temperature may mount so rapidly that, if taken at longer intervals, the maximum rise can well be missed by several degrees. Tepid sponging was used whenever the temperature reached 105°. Nine rigors of 105° were aimed at and the infection was not stopped until this had been reached unless an excess of parasites in the blood film indicated an impending crisis or the patient's condition did not justify further treatment. At the end of the ninth rigor 5 g. of quinine were given three times a day for five days, and 10 g. for the next 12 days. This effectually checked the malaria, and no recurrence has followed.

All the cases treated stood their rigors well, and though a considerable degree of prostration was present on the day of the rigor, there was a rapid recovery on the following day, which enabled the patient to take ample supplies of nourishment and to fortify himself for the next rise of temperature.

Case Histories.

CASE 1.—H. P., aged 34.

History.—Encephalitis in 1919. Three years later he noticed that he was losing power in both hands and legs and that he was developing tremors in his hands.

Condition Prior to Treatment.—Marked loss of facial expression. Spasticity and exaggerated reflexes in both arms and legs. Skin shiny and moist. Constantly salivating. Mentally dull, apathetic, and depressed. No central nervous involvement. No nystagmus. Cerebro-spinal fluid: No excess of protein. Blood: Rouleau and fibrin formation normal. Hæmoglobin, 80 per cent.; red blood corpuscles, 4,762,400; colour-index, 0·8; white blood corpuscles, 6031; polymorphonuclears, 56 per cent.; small lymphocytes, 24·5 per cent.; large lymphocytes, 2·0 per cent.; eosinophils, 0·0 per cent.; basophils, 1·0 per cent.; large hyalines, 0·5 per cent. No changes were seen in the stained red cells. Blood-sugar curve within normal limits.

Present condition (six months after treatment).—Facial expression at rest; still shows some mask-like tendency, but can now smile or frown quite easily. Both arms and legs still some degree of spasticity, but considerably less than before. Skin much drier with no sweat. No excess of saliva. Mentally much improved; is bright and cheerful.

CASE 2.—M. C., aged 31.

History.—Acute attack of encephalitis two years ago. She made an apparent complete recovery from this attack. Two years later she found that she was beginning to lose power in both hands and that she was developing tremors in them. Her mouth constantly secreted saliva and she had very great difficulty in swallowing.

Condition Prior to Treatment.—Well-marked Parkinsonian syndrome with mask-like face, inability to express any emotion, spasticity and exaggerated reflexes in all limbs, shiny skin, and unpleasant-smelling sweat. Cerebro-spinal fluid: No excess of protein. Blood: Rouleau and fibrin formation normal. Hæmoglobin, 80 per cent.; red blood corpuscles, 4,350,000; colour-index, 0·9; white blood corpuscles, 6500; polymorphonuclears, 65 per cent.; small lymphocytes, 22 per cent.; large lymphocytes, 2·5 per cent.; eosinophils, 0·0 per cent.; basophils, 1·0 per cent.; large hyalines, 0·45 per cent. No changes were seen in the stained red cells. Blood-sugar curve within normal limits.

Present Condition (six months after treatment).—In general appearance is considerably improved in that the skin is no longer shiny and there is no strong-smelling sweat. She is able to swallow better and there is less spasticity. In spite of this apparent improvement she herself still feels ill, and a mental condition almost amounting to a degree of anxiety neurosis is still left. She is tending to relapse, and her mental condition is the most serious of all the cases treated.

CASE 3.—C. W., aged 18.

History.—An acute attack of encephalitis two years ago. He made an apparent recovery, but 18 months later noticed that he was losing power in both arms and legs, that his mouth was constantly full of saliva, and that he had considerable difficulty in swallowing.

Condition Prior to Treatment.—General rigidity of trunk. Marked bradykinesia. Excessive salivation. All reflexes exaggerated. Tremors of hands and legs. Cerebration slow. Was rapidly going downhill. Cerebro-spinal fluid: No excess of protein. Blood: Rouleau and fibrin formation normal. Hæmoglobin, 78 per cent.; red blood corpuscles, 4,600,000; colour-index, 0·8; white blood corpuscles, 6900; polymorphonuclears, 54 per cent.; small lymphocytes, 24 per cent.; large lymphocytes, 3·0 per cent.; eosinophils, 0·0 per cent.; basophils, 1·0 per cent.; large hyalines, 0·5 per cent. No changes were seen in the stained red cells. Blood-sugar curve: 0·11, 0·15, 0·195, 0·175, 0·15.

Present Condition (six months after treatment).—Up to three months ago there was an apparent improvement, but he has now started to relapse again. He is experiencing great difficulty in swallowing and has a return of the salivation and tremors.

CASE 4.—D. W., aged 31.

History.—Acute encephalitis two years previously, from which an apparent recovery was made. Eighteen months later she began to lose power in arms and legs and developed typical Parkinsonian syndrome with a constant flow of saliva.

Condition Before Treatment.—Rigidity of trunk. Exophthalmos. Tremors (pin-rolling type) in both hands. Exaggerated reflexes. Skin shiny, covered with sour-smelling sweat. Mentally dull and apathetic; cerebration slow. Cerebro-spinal fluid: No excess of protein. Blood: Rouleau and fibrin formation normal. Hæmoglobin, 72 per cent.; red blood corpuscles, 4,300,000; colour-index, 0·8; white blood corpuscles, 7000; polymorphonuclears, 72 per cent.; small lymphocytes, 23 per cent.; large lymphocytes, 3·0 per cent.; eosinophils, 0·0 per cent.; basophils, 1·0 per cent.; large hyalines, 0·4 per cent. No changes were seen in the stained red cells. Blood-sugar curve: 0·105, 0·155, 0·17, 0·175, 0·15.

Present Condition (three months after treatment).—Saliva within normal limits. Exophthalmos reduced. No excessive sweating. Mentally brighter and cerebration not so slow. Tremors and rigidity remain unaltered.

CASE 5.—B. N., aged 10.

History.—Acute encephalitis two and a half years previously with marked inversion of sleep-rhythm. The latter gradually cleared up and merged into the Parkinsonian state with all the usual features.

Condition Prior to Treatment.—Slight rigidity of trunk and festination. Exaggerated reflexes. Tremors of hands and feet. Excess of saliva. Excess of sweat. Only just able to smile. Mentally dull and depressed; cerebration very slow. Cerebro-spinal fluid: No excess of protein. Blood: Rouleau and fibrin formation normal. Hæmoglobin, 76 per cent.; red blood corpuscles, 4,200,000; Colour-index, 0·9; white blood corpuscles, 5400; polymorphonuclears, 74 per cent.; small lymphocytes, 21·5 per cent.; large lymphocytes, 0 per cent.; eosinophils, 0·0 per cent.; basophils, 0 per cent.; large hyalines, 0·5 per cent. No changes were seen in the stained red cells. Blood-sugar curve within normal limits.

Present Condition (four months after treatment).—Saliva and sweating reduced. Considerable improvement in facial expression. Mentally brighter. Some degree of rigidity of trunk still present. Tremors present and reflexes still exaggerated.

CASE 6.—V. R., aged 16.

History.—Acute encephalitis two years ago, from which apparent recovery was made. A year and nine months later she noticed that her mouth was constantly full of saliva. This was followed by weakness of the arms and legs, a general bowing of the trunk, and difficulty in swallowing.

Condition Prior to Treatment.—Well-marked Parkinsonian picture with exaggerated reflexes, tremors, rigidity, and cyanosis of extremities. Constant flow of saliva. Immobility of expression. Unable to feed herself. Mentally dull and depressed; cerebration very slow. Cerebro-spinal fluid: No excess of protein. Blood: Rouleau and fibrin formation normal. Hæmoglobin, 82 per cent.; red blood corpuscles, 5,000,000. Colour-index, 0·75; white blood corpuscles, 9,300; polymorphonuclears, 68 per cent.; small lymphocytes, 21 per cent.; large lymphocytes, 3 per cent.; eosinophils, 0·0 per cent.; basophils, 1·5 per cent.; large hyalines, 0·5 per cent. No changes were seen in the stained red cells. Blood-sugar curve within normal limits.

Present Condition (six months after treatment).—Facial expression improved and less difficulty in swallowing. A reduction of salivation. She can now feed herself and mentally is much brighter. There are still present, however, tremors, exaggerated reflexes, and bowing of the trunk.

Conclusions.

(1) Some temporary degree of improvement is apparent in all the cases. (2) The improvement is most apparent in the decrease of salivation and sweating, quicker cerebration, and in the facial expression. (3) There is apparently some degree of improvement in the mental condition; though, all the above cases having been told that their condition was incurable, discount has to be made to a certain extent for the improvement brought about by the patient feeling that something further is being done. (4) Little or no improvement is apparent in the rigidity of the trunk, exaggerated reflexes, and tremor. (5) The actual length of time that has ensued since the onset of the disease does not, however long, necessarily indicate that no improvement can be obtained, as the case which did best had had his acute infection eight years previously. (6) There is a distinct difficulty in infecting certain cases of post-encephalitis with malaria, as several of them who had never had malaria before have been inoculated on three different occasions without fever developing. (7) It would appear that, at any rate, a further trial of this method of treatment and a more extensive investigation over a larger number of cases is justified by these results.

I should like to take this opportunity of thanking Colonel S. P. James, of the Ministry of Health, for his help and coöperation in supplying anopheles mosquitoes, and Dr. H. A. Fielden, of Torquay, for his great help on the pathological side.

A further series of cases is under treatment and will be reported on in due course together with a later report on the above cases.

CHRONIC EPIDEMIC ENCEPHALITIS:
TREATMENT BY INDUCED MALARIA.

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CHRONIC epidemic encephalitis is a disease having sufficient resemblance to general paresis to have raised the hope that, after intentional malarial infection, it might show improvement parallel to that which is undoubtedly seen in the latter disease. This is the only reason that can be put forward to justify the treatment of chronic epidemic encephalitis by induced malaria. Both diseases are chronic infective processes affecting the central nervous system, notoriously resistant to any known treatment by drugs, and, once established, sooner or later are fatal. The few references in the literature to malarial treatment of encephalitics show that only an isolated case here and there has been dealt with, and that the reports have been published before the full effect of the treatment could be definitely appraised.[1] [2] The subject was discussed last year at the October meeting of the Office International d'Hygiène Publique, and Colonel S. P. James informs us that "Dr. Chodzko, of Poland, said that an Italian had obtained marked amelioration in two out of four cases of post-encephalitic Parkinsonism, but he could not give the reference." The reports from other countries where the treatment had been tried were unfavourable.

It therefore seemed advisable to try, if possible, to decide definitely whether at last some hope of cure could be held out to the unfortunate victims of this incapacitating disease. A unique opportunity for the experiment presented itself at this hospital, as all the facilities for applying the treatment were present, and over a hundred patients were available from whom a choice could be made. The writers have had many years' experience of the treatment of general paretics by this method, and a highly trained staff was available to coöperate in the careful nursing and the making of the necessary observations so essential if the attendant risks are to be reduced to a minimum. In the case of general paretics, what we regard as a full course of treatment is that the patient should have ten rigors with rise of temperature to 104° F. or over, and it was decided that this be aimed at with the encephalitics. This is a severe test of the strength of any patient, and as encephalitics as a whole are none too robust it necessitated a very careful watch being kept on the course of the disease. This was done by clinical observation of the patient and by examinations of the blood films taken quarter-hourly during the paroxysms of fever with a view to judging the extent of blood involvement from the malarial infection.

[1] Stransky: Ars Medici, 1925, iii., 285.
[2] Weygant: Wien. Klin. Woch., 1923, No. 47, p. 2164.

The Experiments Described.

The malaria was induced by the feeding of infected mosquitoes on the patient. This method was used in preference to the inoculation of infected blood, as in this way malaria fever is definitely transmitted, whereas with inoculation we are dealing with an artificial disease which is different from the real infection in many important points which need not be dwelt upon in this paper. The only disadvantage of the method used is that the fever is not so easily controlled by quinine, and two of the present series have had relapses of their malaria.

Fifteen male patients were chosen as representing different types and stages of the disease; five of these were allowed to run a full course and had ten or more rigors with peaks of 104° F. or over, in two it was considered advisable, owing to their physical condition, to terminate their malaria after they had had eight rigors with peaks of 103° F. or over. It is on these seven cases that our conclusions are really based. One case showed signs of pulmonary mischief on the fourth day of his fever and, although quinine was promptly administered and his malaria checked as shown by blood films, he did not rally, and died three days later. Autopsy revealed extensive bronchopneumonia, but nothing to suggest that his death was due to malarial infection per se. All five patients who ran a complete course were youths between 17 and 24, and, without exception, had regular strong rigors and stood their course excellently. Even in them, however, the combined effect of the malaria and the forced inactivity incident to it led to considerable feebleness from which recovery was extremely slow. Compared with the average case of general paralysis the convalescence of these cases was very protracted, and they did not reach their pre-treatment strength for very many weeks. It seemed that the remaining seven patients had escaped infection, but after the prolonged incubation period of eight months in one case and nine months in two cases, three of these patients commenced their malarial fever.

Negative Results of Treatment.

By this time, however, we were satisfied that the treatment was in no way beneficial, and we no longer felt justified in subjecting these patients to the dangers of a prolonged course. We therefore exhibited quinine after a few days' fever, having in the meantime found malarial parasites in blood films from each case, and so proved beyond possibility of doubt the nature of their fever. These three cases, although of little importance from the point of view of the effect of malaria in encephalitics, are of considerable interest to students of malaria on account of the long incubation period of their attack. It should be noted that this was a true incubation period and not a relapse following an abortive primary attack. The temperature of these patients was taken thrice daily for six weeks following their being bitten by the mosquitoes, a period which amply covered the usual time of incubation, and even after that they were under close observation for any evidence of the commencement of malaria. All three cases were infected from the same strain of mosquitoes, as was also one of the four remaining cases who have not yet shown any signs of infection.

Conclusion.

In the short summary of each case, which is given below, no details as regards mental symptoms or neurological signs are stated, as these were entirely uninfluenced in every case. The only result of the treatment was a debilitating effect on the general health of the patients, a debility which was very prolonged owing to the poor recuperating powers of the encephalitic, and we have no hesitation in condemning malarial therapy as a thoroughly useless and unjustifiable method of treatment in these cases. It is by no means devoid of danger and, even in those cases who would appear to have recovered from its effects, it may well have left permanent traces. It may have further weakened the already poor defensive mechanism against disease of which they were possessed, and have prevented that step towards improvement which care of the general health causes in the encephalitic. It is well known that it is in early cases of general paresis that most benefit occurs from malarial therapy, and it might be objected that owing to the comparatively advanced type of case dealt with here, a fair chance was not given to the treatment. This objection would be justifiable if advanced cases of general paresis showed no benefit following malarial treatment, or if even the slightest transient improvement had been obtained in one encephalitic patient. Neither of these propositions can be maintained, however, as we can abundantly testify. Our results are also in keeping with the results obtained from other forms of intercurrent fever in the two diseases. It is a well-established fact that in general paresis transient improvement often follows intercurrent febrile diseases, and many forms of treatment have in the past had a passing popularity because of this. In fact, the present malarial therapy was an outcome of this line of treatment. Nothing analogous to this occurs in chronic epidemic encephalitis. At different times we have treated our encephalitic patients with various forms of artificial fever therapy, and two of them have had well-developed attacks of erysipelas with hyperpyrexia, but in no case did any improvement, transient or otherwise, occur.

Summary of Cases.

P. H.—24 years, advanced Parkinsonian, bitten Jan. 12th 1927, by one mosquito; incubation period 10 days. He had 10 peaks of over 104° F., of which the highest was 106°. He stood his course well, but remained enfeebled from for 2 or 3 months. Since then he has made no improvement, and is rather slower and weaker than before h treatment.

M. E.—18 years, advanced Parkinsonian, bitten Jan. 17th by two mosquitoes; incubation period 18 days; 10 peaks over 104° F., highest 107·2° F. Stood course well, convalescence slow. No change.

S. W. T.—17 years, moderate Parkinsonian, apache tendencies, bitten Jan. 17th and Feb. 5th; incubation period 14 days; 10 peaks over 104° F., highest 106° F., and 7 peaks over 103° F. Stood course well, convalescence slow. No change.

S. M.—17 years, moderate Parkinsonian, apache, bitten March 4th by two mosquitoes; incubation period 13 days; 11 peaks over 104° F., highest 107° F. Stood course well, slow recovery. No change. Malarial relapse June 12th.

C. R.—19 years, moderate Parkinsonian, bitten April 20th by five mosquitoes; incubation period 13 days; 10 peaks over 104° F., highest 105·4° F. Stood course well, recovery slow. No change.

H. S.—20 years, moderate Parkinsonian, apache, bitten April 20th by three mosquitoes; incubation period 13 days; 6 peaks over 104° F., highest 105·4° F., and 2 over 103°. He developed slight jaundice necessitating termination of his treatment on the twelfth day. Recovery was very slow. No change.

G. H.—48 years, moderate Parkinsonian, bitten April 20th by six mosquitoes; incubation period 13 days; 5 peaks over 104° F., highest 105·2° F., 3 peaks over 103° F. He became very feeble, and it was considered advisable to intervene on the eighth day. Recovery was extremely slow and he has never altogether regained his lost ground.

H. W.—39 years, moderate Parkinsonian, bitten April 20th by three mosquitoes; incubation period 13 days; temperature remained elevated. Became cyanosed, respiration and pulse rapid. Malaria stopped on fourth day, but bronchopneumonia intervened and death took place three days later.

In conclusion, we would thank the medical superintendent of West Park Mental Hospital, Dr. Norcliffe Roberts, for permission to publish our results, and Colonel James for directing our attention to the foreign literature of the subject.

THYROID MEDICATION IN SKIN DISEASE.*

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THE administration of thyroid by the mouth has been used with varying success by many workers for almost every disease of the skin. Owing to its frequent failure to produce amelioration, its use has fallen into disrepute of recent years. The failure may perhaps have been due to lack of care in picking suitable cases, and also to the absence of any recognised criteria by which cases for thyroid medication should be chosen.

Increase of thyroid hormone in the blood stream causes: (1) an increased metabolism of the skin; (2) an increased superficial and peripheral circulation; and (3) an increased vascular response to irritant. These three results, all interdependent, would be of great value in combating the progress of many chronic diseases of the skin, were it not for the many contra-indications to its routine use.

Thyroid may be given in three groups of skin diseases: (1) Where there is definite evidence of subactivity of this particular gland—e.g., the xerodermia of myxœdema. (2) Where there is no evidence of gross glandular subactivity, but in which the effects of thyroid medication may be expected to remove the causes, or relieve the results, of the skin disability. These are cases in which thyroid "poisoning" forms a method of treatment—e.g., certain cases of pernio. (3) Diseases due to some obscure disorder of metabolism in which a general increase of vital processes may be expected to remove the causative agent—e.g., certain cases of chronic urticaria.

These groups may now be studied in detail with examples.

Subactivity of the Thyroid.

Group 1.—Where there is definite evidence of subthyroidism, the dry, harsh skin of a true case of myxœdema, or the less dry skin of a patient definitely suffering from reduced thyroid activity, will yield to thyroid medication in nearly every case, and a week or two of comparatively mild doses of the gland will give marked improvement. Whenever a skin disease, even one of unknown ætiology, is found in a patient who is mentally slow, has a sluggish pulse, dry skin, a partial diffuse alopecia, or other symptoms suggestive of subthyroidism, then treatment by the gland may be rationally employed, and surprisingly successful results often follow. In a case of epidermolysis bullosa where there was definite general evidence of such subactivity, thyroid medication was found not only to give a lasting cure, but also a marked improvement in general symptoms. In other cases of epidermolysis bullosa thyroid has proved valueless. This particular case was complicated by deficiency of secretion, and it may have been that the readjustment of this function was accompanied by the removal of some unrecognised ætiological factor.

O. Gans quotes a case of a 3-year-old child with dry, infected, and malnourished skin, in whom thyroid extract alone gave a cure. W. Falta quotes a case of severe irritation in a patient whose skin was "thick, cool, and cyanotic," and did not show any sensible perspiration. Glandular extract produced smooth, elastic, and healthy skin free from itching. J. Hertoghe quotes cases of chronic eczema with thick, infiltrated skins, who manifested signs of reduced thyroid activity and whose lesions yielded to thyroid medication. A chronic type of urticaria may be found in true myxœdema and in cases suggesting a mild form of the disease. Relief following thyroid medication may be due to the direct effect of the gland on the skin or to the removal from some other part of the system of an agent causing the urticaria. M. L. Ravitch[1] quotes nine cases of chronic urticaria cured by thyroid medication.

Malcolm Morris,[2] in a paper on the internal secretions in relation to dermatology, referred to the use of thyroid for a very wide range of diseases of the skin. He concludes that it is of greatest therapeutic value where there are certain evidences of reduced activity of the gland, such as chronic rheumatism, obesity, and mild dryness of the skin. He found it of value in chronic psoriatics who manifested these symptoms. He suggested that it might also be employed with success in the eczema of over-fat babies and in ichthyosis.

Thyroid medication will often produce improvement in general symptoms as well as local symptoms, especially at the menopause. Cases occur where thyroid medication produces an increase of weight, improved mental condition, a brighter and happier outlook on life, and an improvement in the health of the skin in particular. Such cases appear to be in specific need of thyroid. The increase of weight is not altogether an anomaly; it is probable that the relief of the skin irritation and the increased comfort resulting are potent factors in improving the general health and physique of the patient.

Cases for "Thyroid Poisoning."

Group 2.—In this group an attempt is made to combat manifestations of disease by mild thyroid poisoning. Amongst the results of this will be decrease of peripheral tone and increase of sweating, of sebaceous activity, and of skin metabolism. If any of these latter are thought likely to counteract the results of the skin disease, then thyroid medication may be rationally employed. (Thyroid medication may, however, promote a disease which is already associated with sweating or with erythema of arterial origin.) It is possible that chilblains are in part due to an exaggerated physiological response to cold by the superficial blood-vessels. Thyroid medication relaxes peripheral tone and gives a general physiological dilatation of vessels secondary to raised metabolism; it counteracts to some extent the arteriolar spasm, which is one of the causative agents of the pernio lesion. Treatment of chilblains by thyroid extract is, in picked cases, rational rather than empirical.

In skin conditions where there is general infiltration and thickening in the absence of any definite underactivity of the thyroid, administration of the gland may produce improvement by increasing superficial circulation and nutrition. Very minute doses may bring this about; in one case, with an extraordinary sensitivity to thyroid, improvement ensued in the skin, although acute thyroid poisoning followed ½ gr. thyroid gland three times daily. Byrom Bramwell,[3] after accidentally producing a general exfoliation from thyroid poisoning, had a number of almost miraculous cures of psoriasis. His results were produced in one case at least by the development of a marked hyperthyroidism.

There are several conditions of the skin grouped rather loosely under the headings of "ichthyosis" and "xerodermia." In many of these thyroid medication is of some value, though occasionally it is definitely contra-indicated by other characteristics. All degrees of dryness are found in human skin varying from a mild follicular hyperkeratosis confined to the posterior border of the upper arm—a condition frequently associated with an impaired peripheral circulation—to a general thickening and dryness of the skin of the whole body. Amongst these groups is a class of individual having an "ichthyoid" skin, best described as leathery in texture, in whom grease secretion is little diminished, though the perspiration may be reduced. These persons are usually free from any general disorder of the skin, and it is only an outside observer who realises that they are abnormal. They may, however, manifest

* Based on a paper read before the Bolton Medical Society.

intercurrent diseases of the skin, and may respond to thyroid medication because of an improvement in the basis on which the disease occurs. This applies particularly to patients in whom perspiration is diminished.

In all degrees of peripheral dryness thyroid medication may be of value. The disadvantage of a routine treatment on these lines is that it occasionally induces a temporary attack of hyperthyroidism with consequent distress. Thyroid therapy may be contra-indicated by cardiac, metabolic, or digestive disorder. The skin condition may be relieved, but the other manifestations are sufficiently severe to prevent further treatment by thyroid. Some cases develop signs of overdosage before there is any relief of skin symptoms. G. R. Murray[4] suggested that there might be a certain constituent ingredient of the gland with particular influence on skin metabolism. Definite proof of this has not been forthcoming, although it is clinically common to find a typical skin remaining in myxœdema patients who, under thyroid medication, have demonstrated tachycardia, diarrhœa, loss of weight, and other evidences of overdosage. Falta suggests that "dysthyroidism" does not exist, but that these anomalies are due to a varying type of response in different individuals—one responding easily to treatment of obesity, though poorly to treatment of xerodermia.

Skin conditions usually associated with myxœdema may be found in individuals who have no such deficiency. Falta quotes several cases of apparently typical myxœdematous skins in persons of normal glandular activity. Such cases do not react well to thyroid medication.

Provided the action of the gland could be confined to local effects, its use would be much wider than at present, but treatment of skin conditions with thyroid gland to the point of poisoning is hardly justifiable. It is to be noted that Bramwell, who was the first to introduce this treatment for psoriasis, states that a pulse of 130 is by no means a contra-indication. In view of recent work on the possibility of producing diabetes or exophthalmic goitre by excessive dosage, such a pulse would to-day prevent the further administration of thyroid. He concludes his remarks by saying that thyroid medication of psoriasis will occasionally give a brilliant result, often improve the condition, and sometimes have no effect. Subsequent work has done little to disprove these conclusions. I have noted that psoriasis can exist in the presence of Graves's disease, and it seems clear that treatment of psoriasis by thyroid gland is by no means specific.

Metabolic Disorders.

Group 3.—The third and very indefinite group of diseases of the skin which may be treated by thyroid gland consists of certain diseases of obscure ætiology which may be associated with internal derangement of metabolism. Such derangements are occasionally remedied by the direct effect of the gland. For example, it is likely that certain diseases of the skin are due to intestinal irritation or to absorption of unusual products of digestion, factors known to affect the superficial vascular system. They may result from chronic constipation; thyroid extract increases intestinal peristalsis, and so may directly remove the causes of disease. A case is quoted by A. Fabini in which chronic urticaria of nine years' standing was removed by thyroid medication. A nurse (E. K.) under the author's care showed chronic urticaria and also signs suggestive of thyroid deficiency. She was relieved of both by thyroid medication. Whether the relief of the urticaria was due to the relief of constipation by the gland, or whether to a specific vascular effect, it is impossible to say.

Cases of localised sclerodermia sometimes show a marked improvement under this treatment; such results are either coincidence or due to the removal of a quite unrecognised ætiological factor. A local and specific effect on the area of skin involved is unlikely. Many cases of sclerodermia are reported as coexisting with glandular hyperactivity (Falta).

There does not seem to be any rational basis for the treatment of such conditions as lupus vulgaris by thyroid extract, except in so far as the general effects exercised by the gland on the system may improve the general condition of the individual.

Dosage.

The dosage of thyroid will depend on the age, weight, and condition of the patient, and the degree, if any, of subthyroidism present. An adult with slight myxœdema should commence with gr. 3 of the dried extract daily; an adult showing little or no clinical evidence of glandular deficiency can take gr. 1½ daily without danger. The dose is very slowly increased at monthly intervals until there are manifestations of slightly excessive intake or signs of improvement in the skin. The weight and pulse-rate should be taken weekly and noted on the patient's history sheet.

Some patients are sensitive to thyroid gland, even gr. ½ being excessive. In such cases the dose must be much reduced if the treatment is to be continued. A very minute dose may be sufficient to improve the skin condition without giving any discomfort.

Prognosis.

Prognostic points are:—

(*a*) Skin diseases with an onset at any of the transitional periods of life, such as puberty and menopause, are often temporary, and in part due to alteration of thyroid activity, balance being reassumed later.

(*b*) If thyroid medication proved of value in the early stages of treatment then prognosis, if thyroid is continued, is good. The gland can be taken in small doses over long periods without risk.

(*c*) In ichthyotic skins where there are signs of general hypothyroidism, and particularly if there is absence of sweating, a good prognosis may be made. Where sweating occurs normally, the prognosis for the disease for thyroid medication is generally poor.

(*d*) In children, if thyroid medication is beneficial there is often good prospect of improvement at puberty.

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A NOTE ON THE AMBULATORY TREATMENT OF VARICOSE ULCERS.

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To the general practitioner a reliable method of treating varicose ulcers must be a subject of more than passing interest. A new method of approach to the Gasserian ganglion is a theme for the elect but a new method of treating varicose ulcers has an appeal to every doctor. Varicose ulcers and the poor are always with us.

I have had clinical experience extending over 100 cases of the various modern methods of treatment of varicose ulcers, and in every case have seen results immeasurably better than the old lint and zinc oxide therapy. Modern treatment depends on two factors: support to the flaccid vessels and extra support at the point of lowest vitality—the site of the ulcer itself.

The varicose ulcer is due to venous stasis, and as a consequence, impaired nutrition, with often superimposed bacterial infection. It is at once a local and a systemic manifestation, and to get result local and systemic therapy must both be employed. Assuming the obvious natural therapeutic agents

food, air, and intestinal disinfection, the essential treatment is first to ensure as much local sterility as possible, then to give support to the vessels of the leg, and finally to give extra support to that point where the tissues are weakest and have broken down —the ulcer itself.

To effect this I have tried the following methods. (The leg in each case has been washed in hot soap and water or some bland antiseptic from the toes to the knee. The surface of the ulcer has been cleared of slough and débris ; the edges and the base, where necessary, touched up with caustic.)

1. Dress ulcer with a suitable medicament such as zinc, iodoform, or neoform ; place a few layers of sterile gauze over the ulcer, and on top of this, extending over the edges of the ulcer, sterile lint. Bind leg with crêpe bandage from middle of foot to knee.

2. Dress ulcer as above. Instead of lint use a rubber sponge to extend half an inch all around edges of ulcer, and use crêpe bandage as above.

3. Proceed as in 1 and 2; use a zinc glue bandage instead of crêpe.

4. Unna's paste dressing as described below, with or without sponge, and with or without window opening.

Of all these methods I have found the Unna's paste method to give the best results. The method takes time, but will repay the energy expended. The most intractable varicose ulcer will heal. The patient will not lose one day's work, will not stay one day in bed, and will feel a distinct improvement from the moment the first dressing is put on. This is the method :—

1. Cleanse leg well with warm water and soap. Cleanse ulcer with mild antiseptic, separate sloughs. Touch up edges where necessary with caustic.

2. Elevate the leg. Allow heel to rest on a block for some minutes.

3. Pack ulcer with ung. zinc. ox. until zinc. ox. and surrounding skin are on same level.

4. Cover ulcer with three or four layers of sterile gauze.

5. In some cases place some layers of sterile lint *over* the gauze, and in other cases place a thin layer of rubber sponge *over* the gauze. This extra support is indicated where discharge is not too copious. It is better, however, to omit 5 until some experience has been gained and pass from 4 to 6.

6. With a brush paint the leg from the middle of the foot up to within a few inches of the knee with Unna's paste. At this stage the gauze covering the ulcer is painted with the paste.

7. Commencing from the middle of the foot, roll an ordinary two and a half inch cotton bandage from the middle of the foot to within a few fingers-breadth of the knee-joint. As each turn of the bandage is rolled it should be painted with Unna's paste all around.

8. Allow Unna's paste to dry.

9. If there be no pain, no obstruction-symptoms (i.e., swelling, numbness, discoloration, &c., of the foot), no excessive discharge, allow the bandage to remain on for one week. If there be any of these symptoms take down the bandage and repeat process when symptoms have gone.

10. The second similar dressing, in the absence of any of the symptoms mentioned, might remain on for two weeks.

11. The third similar dressing for three weeks. At this period even the most recalcitrant ulcer should be well on the way to recovery.

It is scarcely necessary to add that Unna's paste is solid when supplied by the chemist, and should be brought into solution by placing it over steam, or placing the jar which contains it in a vessel of boiling water.

By this method we ensure: (*a*) That the leg and ulcer are not contaminated from outside by daily handling, dirty lint, and creviced loose bandage. (*b*) That we get equal traction along the whole leg and that the vessels get adequate support. (*c*) That the ulcer itself is under extra pressure and is bathed in mollifying zinc.

To simplify the routine dressings, I have recently experimented with a bandage of my own which will eliminate the tedious painting with the Unna's paste, and will, I hope, give just as good results. I have not, however, tried a sufficient number of cases to write with authority on this method.

Clinical and Laboratory Notes.

A NOTE ON ULTRA-VIOLET RADIATION IN THE TREATMENT OF HERPES.

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THE treatment of herpes in its various forms by ultra-violet rays has been advocated in most of the books dealing with ultra-violet therapy. Although none of the authors have published large series of cases, all record good results in the cases they have treated, some actually claiming to have aborted herpes in the early stages. All have used the mercury [1] vapour lamp, air-cooled for treatment and water-cooled for aborting attacks. The dose advocated varies ; Plank [2] recommends blistering, although he reports a case which improved rapidly without such vigorous treatment. Others suggest doses which would correspond to a second or third degree erythema.[3] [4]

It is not easy to collect long series of cases of herpes, nor is it always possible to be certain that the particular treatment given was actually responsible for the improvement. There is, however, little doubt that ultra-violet treatment was of benefit in the nine cases I have treated, of which the three following are typical.

CASE 1.—Five weeks after a course of stovarsol and auremetine for amœbic dysentery the patient began to complain of itching in the left groin and noticed a number of vesicles. The itching was so intense that it kept him awake the whole of the first night and he said that he could not bear anything touching the skin. He was given five minutes at two feet with the air-cooled Hanovia lamp (a second degree erythema). This dose was repeated every day for four days. The first exposure relieved the itching and the next day there were fewer vesicles. After the fourth exposure all the vesicles disappeared ; there was no itching and there was no scarring of the skin. The stovarsol was probably not responsible for the herpes in this case.

A control case, not treated with ultra-violet rays, occurred in the hospital at the same time and with very similar distribution, and the vesicles and itching persisted for three weeks. The patient had previously been given a course of ultra-violet treatment and his skin had become well pigmented. He was not on ultra-violet treatment at the time of the attack of herpes. Serious scarring resulted.

CASE 2.—The attack of herpes zoster came on during a course of ultra-violet treatment for anæmia. He was not receiving any arsenical drugs at the time. As a large area was affected, the opportunity was taken of observing the effect of doses of different intensity. Part of the area was treated with the "Alpine Sun," the other part with the "Kromayer." Very heavy doses from both lamps were necessary to obtain any reaction, his skin being well pigmented as the result of his general ultra-violet treatment from the carbon arc. Three days after the first exposure most of the vesicles had disappeared, but there was still some irritation. The Kromayer only was then used to relieve the irritation, which cleared up with three more exposures. The heavier doses from the Kromayer were more effective than the doses from the Alpine Sun. There was no scarring or neuralgic pain after the treatment.

CASE 3.—A woman with a patch of herpes zoster was sent to the light department at the Mount Vernon Hospital by Dr. J. F. Halls Dally. The vesicles had been present four weeks and the patient was complaining of considerable discomfort which disturbed her sleep. One minute from a new Kromayer lamp in contact (heavy third degree erythema) removed the vesicles and relieved the discomfort. The dose was repeated only once two days later, and all discomfort ceased.

Three more cases were treated on similar lines with similar results. In these the herpes was not so severe, however, as in the cases described, and it is possible that they would have improved rapidly in any case.

As far as it is possible to draw conclusions from these few cases it would appear that: (1) general

ultra-violet treatment will not prevent the onset of herpes, nor will the pigmented skin prevent the appearance of vesicles or scarring (Cases 2 and 3); (2) local ultra-violet radiation will remove the vesicles and relieve the accompanying discomfort; (3) heavy doses are more effective.

I am indebted to the Director-General of Medical Services, Ministry of Pensions, for permission to publish this note.

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THREE CASES OF ETHMOID DISEASE.

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THE ethmoid and sphenoid sinuses are so deeply situated, and so difficult to get at, that inflammation in them is often not thought of as a possible cause of headaches. Such headaches are generally referred to the back of the head or are said to be deep in it. If pus is pent up in these cells, any extra infection may lead to a fatal meningitis, as the following cases show.

CASE 1.—A girl of 7 was suddenly taken ill with headache and vomiting and was very feverish. The next two days she was thought to be better by her mother, as she did not vomit, but she still had headache. On the fourth day she was delirious, so a doctor was called in, who at once sent her into hospital.

On admission her temperature was 101·6° F. There were sordes on the teeth and the tongue was furred and brown. She had much pain in the head. Though there was no actual retraction of the neck, the chin could not be got within 2 inches of the chest. Kernig's sign was well marked. The right toe reflex was extensor. There was no tenderness over the mastoids, and the ear-drums were normal. The pharynx and tonsils were red and swollen, but there was no secretion on them. There was no nasal discharge. There were no abnormal physical signs in the lungs, abdomen, or heart. On lumbar puncture turbid fluid under pressure was obtained, which contained very numerous pneumococci. She was given 5 gr. of urotropine four-hourly, and hypodermic antipneumococcic serum, but she died on the fourth day after admission.

Post mortem the lungs and other organs were quite normal. On opening the skull there was a meningitis spreading all over the brain, most severe in front of the pons. Both mastoids were opened and found to be normal. The dura mater over the right ethmoid was injected, and, when the bone underneath was cut into, it was red and inflamed. In the right ethmoid cells there was thick pus, evidently the origin of the meningitis.

CASE 2.—A man of 25 was admitted to hospital under me some years ago for headache, which he had had on and off for some time, but it had become worse lately, keeping him awake. There was no retraction of the neck and no Kernig's sign. His temperature and pulse were normal. His tongue was very furred. There was no albuminuria. A few days after a patient was admitted to the next bed with an acute streptococcal infection of the throat. The next day the man had a sore-throat, and his temperature rose to 100° F., the headache also becoming much worse. Two days later the neck was rigid, and Kernig's sign was present for the first time. Some swelling of the temporal and pre-auricular region on the right side was noted. Lumbar puncture gave a cloudy fluid, from which abundant streptococci were grown. On the following day there was swelling of both temporal and pre-auricular regions, more marked on the right side, and œdema of the eyelids as well. There was no nasal discharge. At the post-mortem there was extensive inflammation of the sphenoid bone and pus in the sphenoid and ethmoid sinuses, as well as a streptococcal meningitis. Evidently the headaches had been due to pus in the sphenoid and ethmoid sinuses, and the infection from the throat had lighted up a streptococcal inflammation of the bone and meninges. The œdema of the temporal and orbital regions was probably caused by blocking of the orbital veins and lymphatics by the inflammation of the sphenoid bone.

CASE 3.—A boy of 7 was admitted to hospital with marked proptosis of the right eye, the swelling having only begun a week before. The conjunctiva was bloodshot, and, on examining the optic disc, it was seen to be œdematous. There did not seem to be much pain. There was no nasal discharge. The whole contents of the orbit projected a good half inch in front of the level of the eyebrow, as if there was a tumour at the back of the orbit, but the swelling had all occurred in a week. The temperature was 99·6° F., and the pulse-rate 96. On blood examination there was a leucocytosis of 17,000.

I asked Mr. Fitzmaurice Kelly to see the case and explore the orbit. On making an incision on the inner side above the eyeball, he found pus over the ethmoid bone. He then lifted the periosteum and dissected it back, and opened the ethmoid sinus, which was full of pus. The proptosis soon went down, but it took some time for the sinus to close.

Another case may have been due to ethmoid disease. A lady, who had for a long time been subject to deep-seated headaches, was suddenly taken acutely ill with intense headache, vomiting, a temperature of 102·5° F., and a pulse-rate of 80. When she was seen next day in consultation there was marked evidence of intracranial pressure; her head could not be bent forwards and Kernig's sign was present. There was some tenderness on pressure just below the left eye. I was so convinced that this was another case of ethmoid disease that I asked that the sinuses should be explored. This was done the next day by a London specialist, who, however, said that he found no pus in the ethmoid or sphenoid sinuses, but the following day the temperature had come down, the headache was much less, the vomiting had stopped. The meningeal signs quickly cleared up and the patient got well. The pus in the ethmoid sinus in the first case, in which the patient died of meningitis, was so thick that it would not have flowed out if the sinus had been opened from the nose, and it seems to me possible that such pus might have been present under pressure in the last case, and the opening of the ethmoid sinus may have relieved the tension without, at the moment, causing pus to flow.

Public Health Services.

REPORTS OF MEDICAL OFFICERS OF HEALTH

THE following are some 1926 statistics of six districts:—

Name of district and estimated mid-year population.	Birth-rate.	Death-rates per 1000 of the population.					Death-rates per 1000 births.		
		All causes.	Tuberculosis.	Cancer.	Respiratory diseases with influenza.	Heart disease.	Diarrhœa under 2 years.	Infant mortality.	Maternal mortality
Newcastle-on-Tyne (284,700)	21·0	12·8	1·46	1·16	2·2	1·5	14·1	88	3·
Cardiff .. .. (225,700)	20·1	10·8	1·27	1·14	1·6	1·6	8·8	60	5·
Ipswich .. .. (84,140)	18·3	10·3	0·82	1·24	2·0	1·2*	3·9	45	5·
Gillingham .. (47,820)	16·4	11·3	1·25	1·25	1·5	1·7	7·4	53	4·
Barry .. .. (40,550)	20·3	9·9	1·06	1·20	1·6	1·1	12·1	65	3·
Sheerness .. .. (16,590)	17·7	12·5	0·90	0·90	2·0	2·3	13·0	55	0·

* Average of six years, 1921–26.

Newcastle-upon-Tyne.

Dr. Harold Kerr expresses the opinion that t population of the city did not suffer in health consequence of the strike. This fortunate state affairs was due to the excellent relief arrangemen

As one example, seven and a half more tons of free dried milk and two tons more of cost-price dried milk were supplied than in the previous year. The effect of the strike was also evident in the sunshine records. Thus at the Armstrong College 1085 hours of bright sunshine were registered as compared with 934 in 1925, whereas at the other station at Cockle Park some miles north of the city and in a rural area, 1449 hours were registered as compared with 1461 in the previous year. The clarity of the atmosphere in the town would have been greater still in 1926 but for the fact that much of the coal burnt was of grossly inferior quality. Dr. Kerr goes on to point out that much of the atmospheric pollution for which Newcastle has a bad name comes from the south of the river, and he welcomes the recent move for the formation of a regional smoke committee for Tyneside. He also points out that the city's tramways' power station contributes more than its fair share of smoke and handicaps the health department in dealing with other offenders. The general death-rate is the lowest on record. The towns in the north of England, however, owing to a greater density of the population and a greater shortage of dwellings compare unfavourably with the towns in the south. During the present year (1927) the University of Durham College of Medicine has taken steps to form a cancer investigation committee for the counties of Northumberland and Durham and for Newcastle-upon-Tyne. Fifty cases of small-pox were notified, some of them acute, but there were no deaths. Infantile vaccinations fell from 64 per cent. to 59 per cent. in 1926, but vaccination was "practically never refused by contacts."

There was one outbreak of suspected food poisoning, with three recognised cases and two deaths. Bacteriological examination revealed the presence of the dysentery (Flexner) bacillus in one of the fatal cases and in the intestinal contents of the patient who recovered. The same bacillus was identified in the case of three other members of the household who suffered no characteristic symptoms. Of seven patients with acute poliomyelitis, all survived, but two were left with permanent paralysis. Of three patients with cerebro-spinal fever two died, and eight of 24 cases of encephalitis lethargica were fatal. On June 26th Dr. Neil Maclay, the visiting oto-rhinologist of the city hospital, died suddenly. His work since 1921 had been an unqualified success in shortening the stay of patients in the hospital and in preventing deafness. Dr. W. Frank Wilson has been appointed in his stead.

Scarlet fever antitoxin has been administered to 3 patients with severe attacks. "If given at an early stage, the effect is almost magical, temperature falling rapidly, toxic symptoms disappearing, and general improvement occurring within 24 to 36 hours of the injection." A mercury-vapour lamp has been installed and has proved a success in promoting the convalescence of fever patients. Sickness among the nursing staff was heavy during the year. There were seven cases of scarlet fever and six of appendicitis. There were no cases of enteric fever or diphtheria, against which the nurses are protected by inoculation. Of the 56 city cases of ophthalmia neonatorum 1 died, 4 recovered completely, and in 1 baby the sight of one eye was left slightly defective. There are 18 registered blind persons in Newcastle, of whom 3 are stated to have been blind from birth, but there is only one blind child under 5 years of age. The infant mortality-rate of 88 is the lowest yet attained. The Byker ward had a rate of 130, while that in Osmond was only 40. Dr. Kerr points out that nearly half the deaths of infants are due to causes operating before birth, hence the importance of the antenatal clinics. There were 376 antenatal sessions in 1926 as compared with 319 in 1925. During the last five years the new cases attending the sessions have increased from 252 in 1922 to 1015 in 1926. The total number of births during 1926 was 6007. Dr. Kerr claims that the comparatively low maternal mortality from childbirth is largely due to the Princess Mary Maternity Hospital. The births in Newcastle are attended in about equal proportions by doctors, midwives, and this maternity hospital. As regards tuberculosis, Dr. Kerr considers that the prolonged period of industrial depression has interrupted the decline in the mortality from pulmonary tuberculosis, but that the greater attention now given to milk is causing the decline in the rate from non-pulmonary tuberculosis to continue. Out of 376 samples of milk examined for tubercle 15, or 4 per cent., were found to be infected. About 10 per cent. of the samples from Cumberland proved to be tuberculous. The new milk legislation has not as yet produced regular inspection of milk herds by county councils, but it has, at any rate, resulted in a thorough search being made for offending cows when tuberculous milk is reported. The cow population of the city includes only about 410 milch cows, seven of which were found to be tuberculous during 1926.

For some years Newcastle has insisted on the rinsing of empty milk churns before they are returned to the farmer. This has now become a legal requirement under the Order of 1926. About 24,000 churns were examined on the railway stations during 1926 and only 64, or 0·3 per cent., were found to be unrinsed. Of 3005 empty churns passing through Newcastle from retailers to farmers outside the city 47, or 1·5 per cent., were found to be unrinsed.

The wards in the city hospital used for advanced cases of tuberculosis are kept fully occupied, but this is not the case with the beds at the corporation sanatorium at Barrasford, owing to the difficulty in getting early cases. The corporation give precedence in the allocation of their houses to families affected with tuberculosis. In some cases, when the "tuberculous" family cannot afford to pay the rent, the preference is given to persons who have had to live in the same house, or the tuberculous family is given a better house vacated by an ingoing corporation tenant. An approved scheme for a public abattoir has been held up owing to financial stringency. Owing to the housing shortage "unfit" houses cannot be closed. During 1926, 441 corporation houses were completed, and at the end of the year 1854 were in course of erection. About 400 of these, however, were "compensatory" for houses demolished under improvement schemes. The demolition of houses in the three condemned areas goes slowly on, as the compensatory houses are completed. Up to the present the dispossessed occupants of the condemned areas "are revelling in the immense improvements in their conditions and by their care of their new homes and gardens are exhibiting all the symptoms of newly developed house-pride. Also, in spite of the hard times, there are very few arrears of rent."

Cardiff.

Dr. Ralph M. F. Picken's health report opens with a chart showing how the various branches of his department are arranged. There are seven assistant medical officers on the staff, none of whom devotes his or her whole time to any one section. The Newcastle report also opened with a similar chart, but in that case the medical officer of health is not school medical officer and there is not the same unification as in Cardiff. Dr. Picken says the low mortality of 1926 must be regarded as largely due to the absence of respiratory catarrh. One wave of influenza had just spent itself before 1926 came in and another became manifest in the first week of 1927. The inadequacy of the hospital accommodation for advanced infectious cases of tuberculosis in Cardiff and East Glamorgan has been considered by the Welsh National Memorial Association. Dr. Picken points out that Cardiff has not been receiving bed accommodation in proportion to its payment to the funds of the association. An investigation has been made of the place of birth of tuberculous patients and their parents with a view to arriving at conclusions with regard to the acquisition of immunity. According to one theory children brought up in a town acquire a certain degree of immunity by exposure to small doses of infection.

According to another, they inherit resistance from immune ancestors who have been the fittest to survive in unfavourable urban conditions; 80·2 per cent. of non-pulmonary cases were Cardiff born, while 61 per cent. of pulmonary cases were Cardiff born, and 84·8 per cent. of pulmonary cases were urban born. The percentage of Cardiff born parents was 42·2 for non-pulmonary and 21·4 for pulmonary cases. The smallness of the percentage in the case of the parents is explained by the rapid growth of Cardiff until quite recently. The fate of the infants born in tuberculous households has also been studied. Of 77 such infants born in 1926, 55 were found to be healthy in June, 1927, 6 were delicate, and 6 could not be traced. Ten had died, one from tuberculous meningitis, one from tuberculosis of the intestines, and the remainder from non-tuberculous causes. The foregoing are the crude figures of a much bigger investigation which it is hoped will be carried out.

Owing to an alarming outbreak of diphtheria, immunisation was carried out at three schools. Out of 1799 children under 10 years of age 579 were Schick-tested, 418 were positive, and 415 were immunised. Out of 578 children over 10, 174 were tested; 87 proved positive and 87 were immunised. Forty-four children under school age living near one of the schools were also immunised. No child who had had time to react to inoculation had developed diphtheria up to the date of writing. The number of first attendances at the two antenatal clinics was 865 and the births in 1926 were 4537. Some particulars were obtained of 771 expectant mothers (244 of them primigravidæ) who attended for the first time during 1926; 336 were confined in private dwellings, 358 in the maternity hospital, 23 in other nursing homes, 12 had miscarriages, in 2 cases the mother died before confinement, 2 were confined elsewhere than Cardiff, and 38 were not traced. More than half were confined away from their own homes and more than half required treatment for some defect. The crippled children under school age attending the orthopædic clinic number 201, and included 48 crippled by poliomyelitis, 11 by other palsy, 32 by congenital malformations, and 82 by rickets. The special venereal diseases centre for mothers and children was opened in February, 1926, and treated 63 cases of syphilis and 84 of gonorrhœa. This centre receives its cases chiefly from the antenatal, child welfare and school clinics. At the antenatal clinic a Wassermann test is done on each new patient. Another source of cases is the following up of ophthalmia neonatorum. It is found that the expectant mothers attend well, but after the birth of a healthy baby postnatal attendance is not so satisfactory. Of the 93 cases of ophthalmia notified 83 had unimpaired vision, 1 was blinded in the left eye, 7 died from other causes, and 2 left the district. House building proceeded faster during the year, but the overcrowding found by the staff of the health department "shows little or no abatement." Daily measurements of the ultra-violet radiation have been taken since May, 1926, which indicate that its amount is nearly ten times as great in midsummer as in midwinter.

Dr. Picken draws attention to the extremely unsatisfactory type of receptacle usually provided by householders for refuse. Leaving out the corporation housing estate, covered galvanised bins are only provided for 8·9 per cent. of the houses. There is a further percentage of 3·6 uncovered bins, and the remainder of the receptacles "consist of buckets, boxes, baths, &c."

Ipswich.

Dr. A. M. N. Pringle points out that in pre-war days there was a housing surplus of sufficient size to keep rents from advancing out of proportion to the capacity of the people to pay and so to permit of the population stepping upward from poorer to better houses. Now this surplus does not exist, the "stepping" process has stopped, and the worst houses are the most crowded. The slums are filled with people who cannot escape because of the stoppage of the population movement, and who are there in addition to the habitual slum-dwellers. In discussing the decline of tuberculosis, Dr. Pringle points out that the fall began long before the Public Health Act of 1875, and that its essential cause is to be found in the production of races immune to tuberculosis. An antenatal clinic is held once a week. The number of cases who attended during the last three years were 27, 61, and 123 respectively, whilst the births for 1926 numbered 1540.

Gillingham.

Dr. W. A. Muir reports that 50 per cent. of the children born attend the infant welfare centre at least once. The number of houses completed during the year was 203, the largest number for many years. The shortage of houses, however, continues. It is estimated that 200 new houses are needed annually to cope with the increase of the population and to replace demolished and dilapidated property. This estimated annual number has now been reached, but the leeway of the war and post-war years remains to be overtaken. The corporation have made an arrangement for the use of the joint hospital at Rochester for isolation purposes. The policy is adopted of domiciliary treatment of scarlet fever except in severe cases and where the premises are used for business purposes. There was a sudden outbreak of diphtheria in December, largely in connexion with St. Mary's school. An examination of all the pupils resulted in the discovery of one boy with severe nasal diphtheria. The closure of the school before the Christmas holidays apparently ended the outbreak. There is no municipal maternity home but 26 civilian cases were sent into the naval maternity home through the health department during the year. The corporation have not yet provided institutional treatment or the services of an obstetric specialist for puerperal fever. A number of small shops now retail sterilised milk in sealed bottles, and Dr. Muir thinks these shops should be regarded as "dairies" for the purposes of the new Milk Act. He also criticises the exemption from the milk order of persons who keep a cow or two for domestic use but occasionally sell surplus milk. Thirty samples of milk were examined for sediment by Sutherland Thomson and Co.'s sediment tester. Nine were classed as clean, ten as fairly clean, eight as dirty, and three as very dirty. The retailer is allowed to see the pad of cotton-wool through which the milk has been poured to illustrate the necessity of taking measures to ensure a cleaner supply.

Barry.

Dr. Percy W. Kent reports that the inhabitants are largely employed at the docks in connexion with the export of coal. The coal strike suspended the exportation of coal for nearly seven months, but the prolonged unemployment has not so far affected the health of the community. The urban district council has an accident and surgical hospital with accommodation for about 30. Dr. Kent urges the need for its extension by the provision of medical, children's and maternity wards. Eighty-eight children under school age received operative treatment at the school clinics, 22 for adenoids and enlarged tonsils, and 66 for dental caries. The six notified cases of ophthalmia neonatorum resulted in one case of impaired vision. Crippled children under school age are referred for orthopædic treatment to the Prince of Wales Hospital, Cardiff, the expenses in necessitous cases being paid out of a special fund. Thirty-three cases were treated during the year. The housing situation has been somewhat eased by the erection of houses by the council, but Dr. Kent says that overcrowding will continue until houses can be erected to be let at a rental of about 8*s.* per week.

Sheerness.

Dr. W. C. D. Hills reports for the united districts of Queenborough and Sheerness. Sheerness stands on alluvial land and the whole district is flat. A final sewage pumping-station is to be installed to allow for a population of 30,000. A new housing si

has been obtained and a contract made for the erection of 80 houses. It is estimated that 250 houses are required, but the growth of the town, apart from its use as a health resort, depends largely on dockyard developments. Another scheme of 40 new houses is in hand for Queenborough where there is also a housing shortage. Both districts suffered from outbreaks of poliomyelitis. In Sheerness there were 13 cases and one death; in Queenborough there were nine cases and one death. Dr. Hills thinks it is likely that this disease is spread by means of food, more especially milk, which has been contaminated by carriers. There is no hospital on the island and non-infectious cases needing hospital treatment are removed by the St. John Ambulance Brigade to Maidstone or Rochester, 18 to 20 miles away, while infectious cases are removed to a hospital at Sittingbourne. Dr. Hills performs the duties of school medical inspector for the county council in his two districts, and accommodation is provided at Sheerness for a branch county bacteriological laboratory. The Borough of Queenborough, with a population of 3062, had a birth-rate of 20·6 and a death-rate of 10·4. Its occupations are mainly pottery, glue, chemical, and glass works. The breaking up of war vessels has now ceased and a decline in the population is probable.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED OCT. 8TH, 1927.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 149 (last week, 122); scarlet fever, 2262; diphtheria, 1158; enteric fever, 100; pneumonia, 736; puerperal fever, 35; puerperal pyrexia, 88; cerebro-spinal fever, 4; acute poliomyelitis, 45; acute polioencephalitis, 2; encephalitis lethargica, 20; continued fever, 2; dysentery, 7; ophthalmia neonatorum, 103. No case of cholera, plague, or typhus fever was notified during the week.

Of the cases of acute poliomyelitis and acute polioencephalitis taken together 11 were notified from the East Riding of Yorkshire (9 of these from Hull), and 8 from the West Riding (5 of these from Swinton). The dysentery notifications have returned to their normal level.

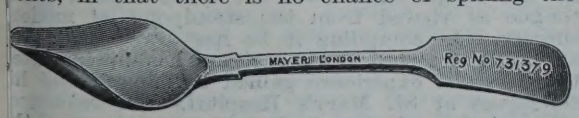
As the result of the further investigation of three cases reported in the newspapers as "mysterious disease in Warwickshire," in Warneford General Hospital, Leamington Spa, it has been established that these three patients are suffering from typhoid fever. It is anticipated that the other cases in the Southam Rural District will prove to be of the same character. The source of the infection has, as yet, to be ascertained.

Deaths.—In the aggregate of great towns, including London, there was no death from small-pox, 3 (1) from enteric fever, 14 (1) from measles, 8 (2) from scarlet fever, 19 (1) from whooping-cough, 34 (6) from diphtheria, 85 (14) from diarrhœa and enteritis under two years, and 28 (6) from influenza. The figures in parentheses are those for London itself. The number of stillbirths registered during the week was 235 in the great towns, including 45 in London.

New Inventions.

AN INFANT'S FEEDING SPOON.

THE need for a better form of spoon for the feeding of small infants has been long felt and I have, therefore, designed a spoon which seems to fulfil all requirements, in that there is no chance of spilling the



contents round the child's mouth during feeding. It is also particularly useful in cases of prematurity or hare-lip. The figure explains itself.

The spoon is made by Messrs. Mayer and Phelps.

E. A. BARTON, L R.C.P. Lond., M.R.C.S.

Reviews and Notices of Books.

MALARIAL PSYCHOSES AND NEUROSES:

Their Medical, Sociological, and Legal Aspects. By WILLIAM K. ANDERSON, M.D., F.R.F.P.S. Glasg., Visiting Physician, Eastern District Hospital, Glasgow; Teacher of Clinical Medicine, Glasgow University. London: Humphrey Milford, Oxford University Press. 1927. Pp. 395. 42*s.*

IN this book Dr. Anderson dwells at some length upon the effects of malaria in the remote past, and in a historical survey traces malaria from Egypt to Greece, and then to Rome. Frequent references to classical writers illustrate his main point—namely, that malaria has a degrading effect upon the character both of the individual and of the race. He regards the fall of these ancient empires as being partly brought about by the malarial mosquito, the conditions of civilisation of those times being eminently suitable to the rapid growth of the anopheles. In dealing with the pathology of the disease he emphasises its protean nature and discusses it broadly under three headings: (1) conditions affecting the blood-vessels (sporulation, &c.); (2) toxic conditions; (3) sympathetic and parasympathetic interaction. The divisions are well described, and the sympathetic parasympathetic interaction theory is worthy of note; it postulates that the prodromal stage of the rigor is one of vagotonia passing into sympatheticotonia during the first part of the paroxysm (the cold phase), and later into vagotonia during the sweating phase of the paroxysm. A large number of physical conditions are described under the various headings, and are usefully illustrated by case-histories and post-mortem notes.

In the section on malarial psychoses nearly all psychotic conditions are included. While in one place they are spoken of as malarial in origin, on another page the author states that "all malarial psychoses are initially confusional states, and all other mental states are further developments at a later stage of certain features on the basis of confusion." Later he suggests that malaria may act by revealing a latent constitutional weakness, such as manic-depressive insanity of dementia præcox. He argues (p. 101) that since malaria is a potent tissue poison capable of damaging any and every tissue to any degree of extent, the clinical features of any case will vary according to the degree of the damage done. This will be readily accepted, but hardly leads us to postulate a definite malarial psychosis or psychoses as Dr. Anderson does. The theory that the psychotic or psychoneurotic condition which may be ushered in as a result of malarial infection is dependent upon the individual make-up of the patient, in accordance with Bleuler's theory of the reaction type, seems more probable.

The title of this book gives no idea of its scope, and implies a limitation which does not really exist. Malaria is dealt with from every possible aspect, and, indeed, the book will, we think, be of more value to all who come directly in contact with the ravages of the parasite than to the alienist or neurologist in this country.

ANOPHELINE LARVÆ.

An Illustrated Key to the Identification of the Anopheline Larvæ of India, Ceylon and Malaya, West of Wallace's Line. With Practical Notes on Their Collection. By C. STRICKLAND, M.A., B.C., Professor of Medical Entomology in the School of Tropical Medicine, Calcutta; and K. L. CHOUDHURY, M.B., D.P.H., Chief Assistant in Malaria Surveys of Assam and Bengal. Calcutta: Thacker, Spink and Co. 1927. Pp. 67. Rs.4.8.

THIS work is a sequel to the "Short Key to the Adult Anophelines," published by the senior author in 1925; its object is to help those who are engaged in antimalaria measures in the Indo-Malayan region.

Too often malaria surveys are conducted by men who make use of the data obtained by hatching out adults from anopheline larvæ which they have collected in the field, not realising the amount of labour lost in this procedure. Much time will be saved by making the best use of the material collected, and a simple method of identification of larval characteristics should be available to all observers. This book supplies illustrative diagrammatic figures of the various larvæ, and instructions as to their collection. Appendices are added on catching adult anophelines, equipment, organisation of staff, methods of packing and dispatching specimens, and, together with a short bibliography, complete a book which admirably fulfils the object for which it was designed. The work is inscribed to Sir Ronald Ross, who contributes a foreword. It is printed on specially durable paper in large, clear type.

TOXICOLOGY.

Diagnosi e Terapia clinica degli Avvelenamenti. Guida per Medici e Studenti. By Dr. G. CORONEDI, Professor of Pharmacology in the University of Florence. Florence: G. Barbera. Pp. 310. L.30.

THIS small text-book contains much valuable information, well arranged and excellently printed. The first part treats of poisoning in general, its symptomatology, course, result, and pathological anatomy. A novel arrangement takes the reader through the effects of poisons on the various systems of the body. Some good coloured plates show the different pictures produced on slides by the addition of a drop of the suitable reagent to the gastric contents in poisoning by lead, silver, arsenic, antimony, mercury, and copper. Reactions for alkaloids and glucosides are dealt with at length. Several blood tests for use in carbonic oxide poisoning are described with coloured illustrations; the reactions of Zaleschy, Salkowski, Katayama, and Coronedi are not commonly performed in this country. In the chapter on diagnosis the differentiation between poisoning by various narcotics is set out from the pharmacological as well as from the clinical standpoint. Many pages are devoted to treatment and the mechanism of the various antidotes is fully discussed. The second part of the book deals alphabetically with every substance which is known or considered to be a poison, including alcoholism, morphinism, nicotism, snake-bite, and botulism. Even such less well-known poisons as picrotoxin, abrus precatorius, vanilla, and lupin seeds find a place in this book, and are described so minutely that a table showing the differential diagnosis between poisoning by lupin, belladonna, cicuta, and aconite occupies a prominent place. In the short bibliography with which the work ends the only references to English authors are to the work of Lauder Brunton, whose book on pharmacology and therapeutics was translated into Italian by Tamburini, and published in Milan in 1901, and to a communication by Hegar and Zunz, made at the International Congress of Medicine held in London in 1913; but in spite of the omissions Prof. Coronedi's book is an excellent work of reference.

MANUAL OF PROCTOLOGY.

Second edition. By T. CHITTENDEN HILL, M.D., F.A.C.S., Instructor in Proctology, Harvard Graduate School of Medicine. Philadelphia and New York: Lea and Febiger. Pp. 294. $3.50.

IN a small book of 294 pages Dr. Chittenden Hill has succeeded in giving a clear and practical account of diseases of the rectum. Certain chapters deserve special commendation, particularly those on ulceration of the rectum and colon, the handling of which difficult subject will be found most helpful. We are glad to see that in the chapter on rectal abscesses the author carries on the campaign against the late and inadequate incision which is too frequently the cause of fistula in ano. The chapters on fistula, hæmorrhoids, prolapse, and pruritus are all very good. In the treatment of pruritus ani, under-cutting operations, such as Ball's operation and its modifications, are not even mentioned; this omission seems to be a good way of emphasising the fact that careful search for the cause of the pruritus and its adequate local treatment are successful in the great majority of cases. A few small points call for criticism; we do not agree that complete division of the external sphincter muscle is needed in the incision of all anal fissures, nor do we approve of the advice to stretch the sphincters as a preliminary to all operations for internal hæmorrhoids. The author advises immediate operation in cases of thrombosed and sloughing internal piles, however septic they may be. We are opposed to this line of treatment; operation in such cases is almost certain to be followed by a tiresome ulceration. Treatment on expectant lines, by baths and antiseptic compresses, leads to spontaneous cure in the large majority of cases, and if operation is needed later it can be done when the sepsis has cleared up. In the section on cancer of the rectum the author states his preference for a combined operation. The last chapter, on radical operation in cancer of the rectum, is written by Dr. Robert C. Coffey, who describes his two-stage abdomino-perineal excision, with his various methods of draining the devascularised bowel pending the second operation. As yet we believe this method has not been extensively tried in this country, and though there are obvious disadvantages in the operation, it appears to be a reasonable method of dealing with a high growth in a patient whose general condition forbids a one-stage abdomino-perineal excision. The text is clear and the illustrations are remarkably good.

FUNDAMENTALS OF DERMATOLOGY.

By ALFRED SCHALEK, Professor of Dermatology and Syphilology, University of Nebraska. Philadelphia and New York: Lea and Febiger. Pp. 239. With 54 illustrations. $3.

THE presentation of knowledge in a condensed form is a thankless task. Although it may well be of some temporary value to the profession, it adds nothing to science, and mostly but little to the author's reputation, but those practitioners who have no leisure for serious study often welcome a brief outline and find it useful. There are some original features in this little book. The various skin diseases are arranged in alphabetical order, and dealt with under the sub-headings of classification, definition, symptoms, ætiology and pathology, and treatment. Some wise observations and warnings are grouped together modestly as "dermatological aphorisms," separate paragraphs on the anatomy and physiology of the skin in general diagnosis, and some notes on general therapy are included. The compilation follows the lines of the standard text-books, and has been well done. The illustrations are not clearly reproduced and will not help much in the difficult problem of diagnosis.

THE TONGUE AND ITS DISEASES.

By DUNCAN C. L. FITZWILLIAMS, F.R.C.S., &c. Surgeon to St. Mary's Hospital. London: Humphrey Milford, Oxford University Press. 1927. Pp. 505. 36*s*.

IN this monograph Mr. Duncan Fitzwilliams has given a comprehensive account of the diseases of the tongue as viewed from the standpoint of modern surgery. In compiling it he has drawn upon the accumulated records of the past, and has supplemented these by the experience gained by himself and his colleagues at St. Mary's Hospital. The references given at the end of each chapter are evidence of the author's industry in the ransacking of "authorities" the definite views which he expresses upon questions such as the treatment of carcinoma of the tongue show that he has thought and practised to some purpose. The result might have been a text-book

of outstanding value, but is, in fact, disappointing. Not that anything of importance has been omitted. The author's thoroughness has indeed led him into giving a detailed account of the surgery of salivary calculi, a subject which is really outside the scope of a treatise on the tongue. The book suffers throughout, however, from a diffuseness and lack of discrimination which tend to blur the outlines of the picture. Its pages are enlivened by many anecdotes; no one could fail to be amused by the story of the policeman's wife who avulsed her own tongue; but the reader is wearied by a multiplication of case-histories with unnecessary details, which might with advantage have been condensed and pruned, and a volume of over 500 pages reduced to one of 300 pages, without loss to the reader. The author's style is conversational and often ungrammatical, faults which also tend to obscure the value of the book. The same lack of discrimination somewhat spoils the impression made by the very numerous illustrations; many are of excellent quality, but others are so imperfectly drawn or reproduced that they had better have been omitted. The book, in fact, though containing much valuable material, lacks the distinction of many of the other volumes issued in the same series of publications.

INTESTINAL TUBERCULOSIS.

By L. BROWN, M.D., and H. L. SAMPSON, Trudeau Sanatorium, New York. London: Baillière, Tindall and Cox. Pp. 304. 18*s*.

IN this book the reader will find a very complete account of intestinal tuberculosis. The authors set out fully their reasons for considering this to be the most frequent complication of pulmonary tuberculosis; since from 50–80 per cent. of all autopsies on patients dying of phthisis disclose intestinal tuberculosis its high incidence is apparent. Little importance, in the opinion of the authors, can be attached to the discovery of tubercle bacilli in stools, since they occur in about 90 per cent. of all patients who have tubercle bacilli in the sputum. Digestive disturbances, on the other hand, are significant; marked constipation, increase of indigestion, and continued pyrexia with simultaneous diminution in the pulmonary signs should, the authors expressly say, always arouse suspicion of intestinal complications, whilst hypermotility of the alimentary canal, with nearly complete emptying of the colon in 24 hours, or constant segmentation with or without dilatation of some coils of the normal intestine, are amongst the most important X ray findings in cases of intestinal ulceration. As regards treatment, the authors consider that heliotherapy and exposure to ultra-violet rays are often extremely useful. The book will be read with interest by those engaged in the treatment of tuberculosis.

TOWARDS HEALTH.

By J. ARTHUR THOMSON, M.A., LL.D., Regius Professor of Natural History in the University of Aberdeen. London: Methuen and Co., Ltd. 1927. Pp. 242. 7*s*. 6*d*.

Prof. Arthur Thomson's writings have been always clearly written and sanely conceived, and his latest book will not disappoint his readers. He approaches health from the standpoint of the pure biologist, and is thus able to stimulate enthusiasm about health without laying too much stress on the way to avoid disease. He bases his biological outlook on the trilogy: organism, function, environment. The first two chapters are concerned with the analysis of life by this "biological prism." In chapter three he deals with heredity, stressing particularly the importance of nurture as opposed to nature, and he holds the balance very ably between the extremes of the inheritance and the environmental schools. The next sections in which sex and birth control are dealt with on biological lines are excellent, and offer a pleasing contrast to many of the popular writings on these matters. After a chapter on the healthy mind, packed full of common sense and sound psychology, the practical applications of biology are discussed in a chapter headed "What can be done?" Prof. Thomson's suggestions are by no means revolutionary, and have a scientific basis. Because it is so good certain small errors should be corrected in the next edition. Lister introduced antiseptic, not aseptic, methods of modern surgery (p. 23), vitamin C is not concerned with rickets, as is suggested (p. 57), and, since the Huntingdon type is so rare, it is misleading to say that some forms of St. Vitus's dance are inherited (p. 72).

We would commend a study of this book to the great statesman mentioned on p. 200, who summoned an eminent man of science and asked what should be done to secure an A1 physically fit society, for Prof. Thomson's book is full of constructive suggestions.

CONTRACEPTION.

Its Theory, History, and Practice. Second edition. By MARIE CARMICHAEL STOPES, D.Sc., Ph.D. London: John Bale, Sons and Danielsson, Ltd. 1927. Pp. 480. 15*s*.

THE second edition of this book, the title page informs us, appears on the completion of the sale of 40,000 copies of the first edition, published in June, 1923. The new edition contains some 60 pages of fresh matter. More, it represents the fruit of much practical experience. Since its foundation in March, 1921, there have passed through Mrs. Stopes's clinic in Holloway over 8000 women—a number surely large enough to satisfy the statistical demands of the most exacting inquiries.

In this book are described certain modifications of contraceptive technique which have been found helpful. Chinosol (described as a disinfectant; its chemical composition is not given) is now used in place of quinine, in a cocoa-butter suppository, as a routine at the author's clinic, in addition to the all-rubber occlusion cervical cap. Mrs. Stopes deduces from certain observations she has made that a process of "interlocking" takes place during coitus with women with a patent os. The question is of importance since, if it takes place, it necessarily follows that a reliable contraceptive technique cannot be evolved from a chemically spermicidal principle alone.

Like the first, this edition contains a very well documented history of the theory and practice of contraception, to which the author has clearly devoted much time. Much that is contained in these chapters is original. There is a chapter on contraception and the law, and another upon instruction in contraception in medical schools which might be read with profit by many medical men. This edition amplifies and consolidates the status achieved by the first.

JOURNALS.

BRITISH JOURNAL OF CHILDREN'S DISEASES, Vol. XXIV. July–September.—Dr. Matthew Young and Mr. W. T. Russell contribute a paper on Sexual Differentiation in Susceptibility to and Mortality from Whooping-cough in Children under 5 Years, their conclusions being as follows: The mortality from whooping-cough computed from the deaths registered as due to this cause is generally sensibly higher in females than in males under 5 years. This sexual differentiation in mortality from whooping-cough and its complications becomes more intensive as age at death increases from 1 to 5 years. The statistics of cases notified in Glasgow and Aberdeen confirm the impression based on hospital admissions that female children are more susceptible to the disease than male children. The only feasible explanation of this sexual differentiation in mortality seems to be that infection with the whooping-cough germ, though seldom fatal in itself, has apparently the ability to modify in an unequal degree the powers of resistance of male and female children, rendering females more vulnerable than males to intercurrent respiratory infections and

their sequelæ. An analogy can be found in certain other diseases, such as chorea and goitre, which occur at a later period of life, and appear to affect the female sex more frequently and with a greater fatality than the male.—In the first part of a paper on the Insulin Treatment of Diabetes Mellitus in Children Dr. K. U. Toverud, of Oslo, discusses the frequency of diabetes mellitus in children in Norway and records his observations on four years' insulin treatment in children aged from 1½ to 14 years, showing the effect of the treatment on the physical and mental development of the child, with remarks on the technique of insulin administration and the reaction to the drug.—In Part II. of their paper on Hemiplegia Associated with Extensive Nervous and Mental Defect, Dr. T. Brushfield and Dr. W. Wyatt report two more examples of this syndrome and allude to three similar cases, apparently the only ones on record, published by E. A. Cockayne, F. Parkes Weber, and D. M. Greig respectively.—A paper follows by the late Dr. Edith Bronson on Functional Cardiac Disorders: Symptoms, Signs, and Treatment.—In a paper on Some Practical Points in the Treatment of Ringworm with Thallium based on his observations at the Skin Department of the Royal Alexandra Hospital for Sick Children, Brighton, Dr. J. H. Twiston Davies describes the technique of this method together with some practical points relating to the pharmacology of thallium.—The abstracts from current literature are devoted to genito-urinary diseases.

BRITISH MEDICAL ASSOCIATION.

ANNUAL DINNER.

THE sixth annual Council dinner of the Association was held at the Hotel Victoria, on Wednesday, Oct. 12th, under the chairmansh p of Dr. H. B. BRACKENBURY, when a large company was present.

When the loyal toast had been honoured, the Chairman proposed the health of the Retiring Officers. Mr. R. G. HOGARTH (immediate past president) paid tribute in reply to the loyalty and wisdom with which he had been supported in his year of office by his associates. Sir ROBERT BOLAM, the retiring chairman of the Council, also speaking in reply, welcomed the two Ministers of the Crown who were present as evidence of official confidence in the Association.

The Toast of the Common Health.

Mr. H. S. SOUTTAR, in proposing the Common Health, remarked on the wide interest now taken by the public in the health of the nation, and said that the medical profession had played its part in the improvement of health well but in an incoördinate way which made us the despair of other nations. The hospitals, originally a refuge for the sick poor, had become great machine shops for the cure of those who were ill, with a wonderful organisation for following up discharged patients. In themselves they were coördinated, but they were isolated, and had as little connexion with the great body of general practitioners and with the municipal and State hospitals as if the latter did not exist. Surely much could be done by coördinating all three services. That, it seemed, was where a Ministry of Health came in. He envisaged the hospital in which he worked as the centre of a great medical service, embracing all practitioners. This would not be an infraction of the voluntary principle. There was, moreover, an important distinction between a State medical service and medicine in the service of the State; the former might be somewhat un-English, the latter was thoroughly British. Service of the State was much greater than service of the profession, and we need not shrink from it.

The Minister of Health's Reply.

Mr. NEVILLE CHAMBERLAIN, in reply, outlined the parts which his department and the profession played respectively in working for "the common health." Doctors repaired the damage done by heredity environment, and the ignorance and folly of their patients; the Ministry's part was to surround the individual with such signposts, safeguards, and wire entanglements as would leave the profession as little to do as possible. There could be no better evidence than the fall in the adult and infant mortality-rates to prove that both sides were making a good job of their work. Some credit could be claimed for the activities of the Ministry, especially in its attack on tuberculosis and its maternity and child welfare work. One of the most potent factors had been the education of the men and women of the country in the means of keeping healthy, an education fostered by general practitioners, medical officers of health school medical officers, and—with perhaps at times some bewilderment to the public—by the press. He hoped that the new powers given to the Ministry would result in an extension of this work, to the confusion of mischievous fanatics such as those who were responsible for the rapid spread of small-pox. Education, moreover, was needed by practitioners. It was no wonder that, working for years far from the centres of knowledge, they were apt to miss the early signs of diseases such as tuberculosis, the treatment of which had cost the nation last year £2,500,000. He was deeply interested in the post-graduate medical school which it was proposed to establish at the West London Hospital. General practitioners, besides learning there, might have something to teach those working on education or research. Although the housing problem was by no means solved, new accommodation had been provided for 1,000,000 persons in the last 12 months, thus opening up a path to an attack on the slum problem. This was not only a problem of clearance; in 1925 500 times as many houses had been repaired and reconditioned by local authorities as had been demolished under clearance procedure. Other activities of the Ministry, continued Mr. Chamberlain, had been the provision of cleaner milk, purer food, and a less smoky atmosphere, and he hoped to see added to the Statute Book before Christmas the Nursing Homes Registration and Mental Deficiency Bills. Further in the future lay legislation on the slum problem and on lunacy, with especial reference to the protection of the certifying doctor. He would like to see a system of specialist services in connexion with National Health Insurance and, above all, the reform of the Poor-law. Unless better coöperation could be secured he feared for the voluntary system, the loss of which would be a disaster, and one of the most effective steps in coöperation would be the conversion of Poor-law infirmaries into municipal hospitals. Without some measure of this sort he saw no hope of realising the ideal, namely, hospital treatment for every citizen in the country. He spoke warmly of the good relationship that existed between the Association and the Ministry and appealed for their confidence and support.

The Guests.

Dr. R. W. LESLIE, in proposing the Guests, alluded to the future of the medical profession in India and congratulated the Indian Medical Service on having so capable a hand as that of Lord Birkenhead on the reins. He deplored the condition of medical charities.

Lord BIRKENHEAD spoke of the advantages of a medical career in India for young and adventurous scientific men.

Dr. RAYMOND CRAWFURD, who also replied, emphasised the lamentable state of medical charities and reminded the company that one guinea per annum from every medical practitioner would solve the whole problem.

The health of the Chairman was informally proposed by Sir EWAN MACLEAN (the president-elect of the Association), and after Dr. BRACKENBURY had replied the proceedings closed with the singing of Auld Lang Syne.

THE LANCET.

LONDON: SATURDAY, OCTOBER 22, 1927.

ENCEPHALITIS LETHARGICA TO-DAY.

It is now about ten years since encephalitis ethargica made its appearance in England. The arly cases were chiefly characterised by prolonged leep, and the physicians who watched these first atients spending days or weeks in peaceful slumber, r (as often happened) passing through slumber to n easy death, could little realise the unspeakable ruelty of the curse that had come upon us. Now, fter ten years, we are in some position to take its easure. Every succeeding year has seen its epidemic; he acute phase of the disease has quickly grown ilder, so that severe cases are seldom met with, nd often the invasion is so mild that the patient s unaware of any illness. But now we know that the ightfulness of the scourge lies in its after-effects, hat few patients in whom the acute infection has een recognised entirely escape undamaged, and hat even those in whom this phase has been nrecognisable, or in whom it may not have existed t all, may suffer severely as a result of the infection. ymptoms may persist without intermission from he acute illness or may develop weeks or months r years after the patient has seemed to make a good ecovery; though the interval is generally less than 2 months, a Parkinsonian syndrome has been nown to develop as long as five years after the iginal attack.

It is only natural, since the brain controls many nctions, that the consequences of its derangement ould be very various, and in fact the different inical pictures presented after encephalitis are almost numerable. The great majority of cases, however, ll into one of three groups in which the principal mptoms are respectively motor, mental, or respira- ry. The first of these groups is undoubtedly the rgest; in the second, with mental symptoms, ost of the patients are children and adolescents; e third is much smaller than the other two, but spiratory tics following encephalitis are becoming dely recognised and are now mentioned in almost ery report. Common to nearly all the cases—o whatever group the other symptoms may fall—is disturbance of the rhythm of sleep. At night these tients, especially the children, become more awake d lively and mischievous, sometimes excited, metimes frightened. This is one of the few sym- oms which has a definite tendency to recover and, diurnal sleep is prevented it seldom continues re than 12 months. The motor manifestations nstitute the now familiar Parkinsonian syndrome, d some signs of this syndrome, however slight, e presented in nearly every case. They resemble st nearly the picture of paralysis agitans, except t there is little or no tremor. The general ture from which the more obvious symptoms se is a rigidity or hypertonus of all the muscles, d at the same time there is loss of automatic or ergic movements. The result is general stiffness the body, slowness of movements, and a mask- a, staring expression. In many patients nothing re than a fixity of the facial expression is to be served; in others, at the opposite extreme, the iculty of movement may become so great that they are unable to feed or dress themselves, and can hardly chew their food. Owing to the stiffness of the muscles of the face and jaw the mouth is habitually held open, and excessive salivation causes a dribbling which is sometimes felt as one of the greatest burdens. As in the true Parkinson's disease there may be a loss of equilibrium, a tendency to run forwards or backwards, or, when sitting, to let the body sink slowly forwards or sideways till the head is on the level of the seat of the chair. As a rule, there is no injury of the pyramidal system, but hemiplegia or even bilateral pyramidal disease may be present in association with Parkinsonian symptoms.

The mental changes, as has been said, occur chiefly in children and adolescents, though they are by no means unknown in adults. The intelligence is seldom affected; nearly always the alterations are in the sphere of moral control and sometimes emotional disturbances may be added. The children, clean and docile before the attack, begin to use bad language, lie, thieve, masturbate, and be cruel to other children; at the same time they may be irritable and have outbursts of weeping or demonstrative affection. Many of them find their way to the police-court, and thence to the indicated asylum. Lastly, the respiratory tics are among the most curious of the many symptoms that encephalitis has made known to us. Probably the commonest consists in periods of tachypnœa. In a recent report to the Metropolitan Asylums Board Dr. G. A. BORTHWICK, of the Northern Infectious Diseases Hospital, mentions that visitors to the post-encephalitic unit are at once struck by the sound of heavy panting as if many of the patients had just been running a race. The attack may last from two or three minutes to many hours, and cases have been recorded in which the hyperpnœa induced tetany. Hyperpnœa may be followed by a short spell of apnœa, as in Cheyne-Stokes breathing. There may also be sighing, yawning, coughing, and other noisy expiration. These may be accompanied by more or less rhythmic movements of the arms or trunk and sometimes the patient is in great distress.

Treatment of the after-effects of encephalitis has not been at all successful as regards cure, though something may be done to ameliorate the sufferers' condition. Hyoscine and belladonna, combined with massage, help to reduce the rigidity and salivation of the Parkinsonian state. Acting on the view, now gaining ground, that there is often residual infection of the brain after the acute attack, or that the infection may be chronic from the beginning, several workers have tried the effect of malarial treatment. The hope is that malaria or its effects may overcome the infection and cause the symptoms to pass away; the extent to which this hope is realised may perhaps be estimated from the results contributed to our present issue by Dr. ROY CRAIG and by Drs. P. K. MCCOWAN and L. C. COOK. Failing more efficient means of treatment we can only look to epidemiologists to find more efficient means of prevention.

THE FIRST-BORN.

THE peculiar position which the eldest son occupies in the English family by law and convention is generally attributed to the greater probability that his younger brothers have not the same authentic origin. Its advantage to the community may be doubted in view of Prof. KARL PEARSON'S discovery that first-born children enter on their fight with the world under some handicap in body and mind; but on the other hand this discovery does not neces-

sarily imply a willingness on the part of society to be led by weaklings, for it is arguable that the possession of family state or title is an obstacle, rather than otherwise, to holding positions of great responsibility. It is worth considering, perhaps, whether the queer local variant of the "Borough English" custom which put the youngest in the seat of the eldest did not have its beginning in some practical unsentimental idea that the boy to carry on the family should be as little as possible defective in any way. Whatever the truth of these theories may be the facts themselves are extraordinarily interesting, and Prof. G. F. STILL'S Ingleby lectures, the first of which we published last week and the second of which appears this week, will, we are sure, stimulate many readers to look further into the whole question.

Prof. STILL concludes that there is definite evidence that congenital hypertrophy of the pylorus is much commoner in first-born than in later children, and that congenital heart disease, other congenital abnormalities, mental deficiency, and probably epilepsy have the same relation to order-in-family. The validity of these conclusions depends, of course, on the method by which they have been reached, and we would direct particular attention to the ingenious way in which Prof. STILL has met the very considerable difficulties of the inquiry. He rightly insists that first-in-family must mean the first pregnancy, not the first live child. There are no official mass statistics of miscarriages and until recently none of stillbirths; reliance can, therefore, be placed only on individual data which have been personally collected from parents, and he does not minimise the facts that many early pregnancies are not identified and recorded as such, and that women are apt to forget conceptions that did not result in some tangible product. The data are thus open to some criticism, though it is difficult to see how they could be bettered. Seeking to establish the proportion of those who are first-born by this criterion in an average normal population, he brings out plainly what is so often overlooked in medical statistics—that the clientele of hospital and private practice are a class selected by a variety of considerations and are by no means necessarily representative, quite apart from their illness of the moment, of the population as a whole. Nearly one-half of 1000 consecutive children seen by him in private practice were first-born; such mass statistics as are available show that only about one-fifth of live children fall in this group. It is fairly obvious that the difference might be due to maternal anxiety and inexperience, quite apart from any differential incidence of disease. A fair sample of the general population from which his patients are derived seems to be unobtainable except with the aid of a battalion of home visitors who would accumulate the obstetric histories of hundreds of women who at the moment were not interested in sick children; their curiosity might be rewarded or it might not. The results at any rate are not available at present. For them Prof. STILL substitutes the distribution of place-in-family in 900 cases of pneumonia, judging on a priori grounds that the number of instances of such a disease for which medical aid is sought will be determined by necessity rather than choice, and that it is a disease which is very unlikely to have any relation to the order of pregnancies. From this he derives a standard curve which shows about 20 per cent. of children as first-borns. But of 400 cases of congenital hypertrophy of the pylorus, some 48 per cent. are first-born, while 500 instances of tuberculosis and 1000 of digestive troubles are distributed among the place-in-family groups in almost exact correspondence with the standard curve. It seems fairly clear that eldest children are particularly prone to pyloric hypertrophy; if there is some fallacy in the statistics and they are not, it would appear to follow that first-borns are *less* liable to pneumonia, tuberculosis, and alimentary disorders; in either case place-in-family is a factor in determining the incidence of disease, and if that fact has been definitely established for any one disorder there is every encouragement for others to pursue the topic as he has done.

Experience counts for much. SAMUEL BUTLER thought that accumulated experience was the basis and method of evolution, and even those who are not prepared to join him in such heresies will admit its efficacy in the life of an individual. Repeated trials and practice will improve the capacity of the body to do anything—from playing golf and bridge to the production of antibodies and the regeneration of red corpuscles. The same must surely be true of conception and pregnancy. A first child is liable to have rather a rough passage into the world because of his mother's inexperience, and for the same reason often has much too smooth a voyage afterwards. Practice will improve his mother's dexterity in parturition and discipline, and it requires no great imagination to believe that the skill of her tissues in the delicate intricacies of fertilisation and early pregnancy will also increase with trials.

THE HOSPITAL POSITION IN SCOTLAND.

THE hospital position in Scotland is entering an acute phase. Last year Lord MACKENZIE'S Committee on Hospital Services reported that there was a shortage of some 3000 hospital beds in the country, and the accompanying recommendations of the Committee formed an attempt to formulate a policy for Scotland which should preserve and develop the voluntary hospitals, while securing, by intimate and friendly coöperation, a continuously adequate hospital service. This would imply joint effort on the part of the voluntary hospitals and the local authorities, and the removal of the poor-law stigma from all institutions, the transfer of powers to the local authorities being designed to introduce that policy of "all-round coöperation" which now represents the predominant view in Scotland. At the recent meeting of the Scottish Regional Committee of the British Hospitals Association in Glasgow, the speakers were, practically without exception, in favour of this policy; Colonel D. J. MACKINTOSH, superintendent of the Glasgow Western Infirmary, in an admirable discourse, made it plain that the future of the voluntary hospitals depended on their coöperation with one another and with the statutory bodies. In Glasgow already there is a certain amount of coöperation of the kind wanted, but it was agreed by the meeting to send a deputation to the Secretary of State for Scotland, with the view of getting a definite lead on the Government's hospitals policy. But quite apart from questions of possible State subsidy to make good the shortage of beds which will thus be raised, the representatives both of the local authorities and of the voluntary hospitals hold strongly that a scheme of readjustment is necessary.

Meanwhile, at Aberdeen, Sir JOHN GILMOUR, Secretary of State for Scotland, has presided at the formal opening of the Woodend Hospital, when the parish council handed over the keys to the town council. This marks an important stage in the development of a great hospital scheme for Aberdeen. As the Secretary of State explained, there are four bodies materially involved—the University through its medical school, the Royal Infirmary as the great medical and surgical hospital, the municipality in charge of the City Hospital for Infectious Diseases

and the parish council as in charge of the poor-law hospitals; and the problem was to readjust the management of the institutions so as to honour in full all the interests involved. The poor-law hospital was not sufficiently equipped to justify the Scottish General Nursing Council in recognising it as a training school for nurses. This parish hospital was erected less than 30 years ago, and a "special" hospital has been erected more recently. But this "special" hospital of 180 beds stood vacant, giving an opportunity for negotiations, while the City Hospital for Infectious Diseases badly needed extension both for cases and for staff, while a vacant hospital stood ready for their use. A proposal was made that the municipality should not merely use the special hospital for municipal cases, but should also take over the medical work for the parish council, and an agreement was arrived at that the municipality should be responsible for the medical and surgical treatment on modern lines of all poor-law cases requiring treatment, including cases from the county parishes of Aberdeen as well as from the city. The city also adapted the special hospital to its own requirements.

Further proposals were made for the extension of the City Hospital itself, an extension long overdue; but for this and the other developments the sanction of the Scottish Board of Health was required. Before giving sanction, however, the Secretary of State, as President of the Board, would have to be satisfied that other interests concerned—namely, those of the University medical school and the Royal Infirmary—were not placed under any disadvantage. Therefore, the condition had been made that the clinical professors of the University should have full facilities for teaching both in the City Hospital and in the new Woodend Hospital. The full significance of the opening of the Woodend Hospital by the Secretary of State thus appears. Under his sanction these two institutions, invloving ultimately perhaps 700 beds or more, should be available in the fullest sense for the work of the medical school and the care of the appropriate cases. And this does not complete the story of hospital development in Aberdeen. For a new Sick Children's Hospital on the Forresterhill site is rising, and, with the financial assistance of the city, a new Maternity Hospital is to be provided in the same campus, where there is already a Maternity Home. Agreements, also, have been concluded whereby the University and the Royal Infirmary acquire from the municipality a sufficient portion of the same area for a new Royal Infirmary. Research and teaching departments of the University will be placed here, and a sanatorium for tuberculosis is projected. Thus, on the one campus, the University student will have easy access to a series of primary institutions, and by the arrangements now completed the new Woodend Hospital and the City Hospital, though a considerable distance from Forresterhill, will become integral elements in the total scheme. And the same general group of consultant and visiting physicians and surgeons will be in a position to adjust their particular services to the conditions of the patients.

The problems at Aberdeen have arisen out of the city's own peculiar difficulties, but the course that is being taken is of wide and general significance. Here, at a single stroke, the municipality assumes and arranges for a complete hospital service for all sick persons entitled to treatment at the hands of the statutory bodies, and, at the same time, the voluntary hospitals are not merely preserved in their autonomy but are materially assisted in their working resources. The main obstacle to the realisation of the great scheme as a whole has been the cost of a new Royal Infirmary, and this is in fair way to be removed. The Lord Provost of Aberdeen, Mr. ANDREW LEWIS, has asked the public for £400,000 to build and partially endow a new Infirmary, and has already obtained over £253,000 towards that sum. Feeling confident of obtaining the amount asked for, he has set the final negotiations on foot for the acquisition of a sufficient site, and the plans for the new Royal Infirmary are in preparation. Lord Provost LEWIS has thus brought about the present position whereby this satisfactory combination of poor-law and municipal hospitals has been effected, and has also succeeded in pushing forward on a large scale the design of the Voluntary Hospitals Commission. His achievement proves that there is in the end no real antagonism between the voluntary system and the official system. It proves further that, by judicious and friendly coöperation, the common hospital services will now become more adequate, and the incalculable value of the voluntary system will be more fully realised. No doubt the City of Aberdeen is in a very fortunate position; because, from time immemorial, the City Authorities and the University have worked together in the most intimate way. When, over 30 years ago, the modern extensions of Marischal College were planned, the pessimists declared that the scheme was Utopian. Yet when KING EDWARD VII came to open the new buildings, scepticism had long vanished. It will be the same when the joint hospital scheme is completed. What Aberdeen has done, other cities, in their own special way, can also do. From the friendly attitude of the British Hospitals Association, it seems probable that we shall not have to wait long for similar developments.

Annotations.

"Ne quid nimis."

THE ASSOCIATES OF HARVEY AND HUNTER.

DURING the past week two of the really great men of medicine have been officially commemorated. On Monday, at the Hunterian Society, Mr. A. E. Mortimer Woolf devoted his second presidential address to Some Personalities of the Hunterian Epoch, the bicentenary of John Hunter's birth falling during his term of office. On Tuesday, at the Royal College of Physicians of London, Sir William Hale-White delivered the Harveian oration—printed in another column of our present issue—taking as his title Gilbert, Bacon, and Harvey. Foundations for the annual commemoration of any one man, however distinguished, are hampered by the fact that there must come a time when it is difficult, if not impossible, for the orator to say anything new about the man whom it is desired to commemorate. For this reason Sir William Hale-White chose rather to look among Harvey's contemporaries in order to see who were the men around him who might especially have influenced his life and work. Harvey was, of course, Francis Bacon's own physician, and a book which became so immediately popular as did the "Advancement of Learning" must have been familiar to him. In this book Bacon pleads for the experimental method and for the appropriate reward of experimenters, whom he describes as the "spials and intelligencers of Nature," and although a strict comparison of dates may suggest that Harvey could owe nothing to the "Novum Organum," yet it is reasonable to suppose that Bacon, who made no secret about his philosophical work, talked about it with his physician as he did with his chaplain, so that his teaching can hardly have failed to touch the mind of Harvey. In London as it then was, no bigger than a large provincial town, the two must have seen much of each other; Bacon with his chronic introspective dyspepsia must have consulted his physician frequently; there may be no evidence that Bacon attended Harvey's Lumleian lectures, but Harvey's writings bear the impress of scientific deduction, the counterpart of that of the philosopher. Sir William Hale-White will, we think, persuade his readers even if, as he admits, the evidence is circumstantial rather than direct; "how little," he remarks, "we know of the daily doings of people who lived 300 years ago."

This is true of the Hunterian epoch, for apart from the results of their scientific labours it is remarkable

how little we know of the personalities of the Hunters or of their contemporaries—William Cullen, William Smellie, Joseph Black, Gilbert Blane, William Clift, and the others to whom Mr. Woolf refers in his address. He naturally gives pride of place to John Hunter's illustrious brother William, to whom John owed a debt of gratitude which most regrettably he forgot in after life. Of William Hunter we know that he was physician to Queen Charlotte, but he had another patient in a more humble walk of life, whose child is better known to many than the sovereign in question. On the evening of June 23rd, 1766, Mrs. Smith was returning in a hackney coach from the house of her brother in Seven Dials to her own house in Great Portland-street, and while still in the coach gave birth to John Thomas Smith, author and antiquary, whose "Book for a Rainy Day" and "Nollekens and His Times" could ill be spared. Mr. Woolf believes that during Hunter's time witchcraft had a great influence on medical treatment. However that may be, quackery, of course, was still rampant and even the medical profession was not exempt from belief in quack remedies. A notable example he gives is that of Joanna Stevens, who contrived, with the aid of various titled persons, and armed with testimonials from Cheselden, Cæsar Hawkins, and Samuel Sharpe, who had been Cheselden's apprentice, to get £5000 out of the Government for the recipe of her remedy for the stone. Mr. Woolf mentions another quack, Taylor the oculist, who dubbed himself Chevalier, and numbered among his patients the infant Gibbon. Johnson and Walpole both took him at his proper valuation. The latter, in a letter to Mann, dated June 9th, 1755, thus refers to him: "I need not desire you not to believe the stories of such a mountebank as Taylor. I only wonder that he should think the names of our family a recommendation at Rome; we are not conscious of any such merit; nor have any of our eyes ever wanted to be put out." Mr. Woolf discoursed pleasantly about other medical men of the time—Abernethy, Hewson, and the shameless Jesse Foot; he tells the story of Sir William Blizard attending in full court dress to receive bodies from the hangman, although we believe he is not right in locating the College of Surgeons itself in Cock-lane—the College had hired a house in that street for the purpose of official dissections, the place being convenient for Newgate. Last and by no means least of those mentioned by Mr. Woolf is William Clift, the unwearied curator of the Hunterian Museum. Clift died in 1849, but many years earlier he nearly met with the fate of Jonah. A whale had been captured off the Nore and the carcass beached on the Isle of Dogs. Clift, always on the alert for any specimens of anatomy, went down to see it. He stepped inside the mouth which was propped open and immediately slipped on the oily decomposing tongue towards the gullet. From this perilous situation he was rescued by a boat-hook. Mr. Woolf is to be thanked for his informing and amusing address.

THE PNEUMOCOCCUS IN LOBAR PNEUMONIA.

THE investigations of the Rockefeller Institute have shown that there are three dominant types of pneumococcus each possessing a specific immunity reaction. They are called Types I., II., and III., whilst all other types, including many as distinct as the first three, are grouped together and referred to collectively as Type IV. Types III. and IV. are often found in the mouths of healthy people, but the others never. An attempt has now been made by R. L. Cecil, H. S. Baldwin, and N. P. Larsen[1] to correlate the type of pneumococcus with the clinical manifestations, complications, and other features of the disease. Two thousand cases of lobar pneumonia were examined bacteriologically and clinically, and 1913 were due to the pneumococcus. In classifying these preference was always given to the pneumococcus as the causative organism if the infection was mixed. The type was usually determined by examination of the sputum or pharyngeal swabs, sometimes by blood culture, and in fatal cases by lung puncture after death. Inoculation of mice was used exclusively for further investigation of serum reactions. It was found in the series that 34 per cent. were of Type I., 19 per cent. of Type II., 13 per cent. of Type III., and 33 per cent. of Type IV. Types II. and III. were the most fatal, each with death-rates of 42 per cent.; Types I. and IV. were milder, with death-rates of 21 and 29 per cent. respectively. The authors point out, however, that these figures alone cannot be taken as an estimate of virulence, for the age-incidence of the various types is probably a factor of at least equal importance in prognosis. This is confirmed by the observation that young people are particularly prone to Type I. infection and the elderly to Type III.; yet when Type III. does occur under 30 it is not a severe infection. In 329 patients a blood culture was taken and it was found that among 240 whose blood was sterile the death-rate was 19 per cent., whilst among 89 positives it was 83 per cent. In Types II., III. and IV. a positive culture indicated a fatal termination in 90 per cent. of cases, but in Type I. the prognosis was less grave. These figures, it is pointed out, are open to a serious criticism on the ground that in many cases only one or two cultures were taken. It is not stated at what stage in the disease or in what particular type of case blood culture was attempted. The mortality was found to increase with the number of lobes involved, but this seemed not to depend on the type of pneumococcus. The incidence of severe complications was very much higher with Type I. infection, but here again the tendency of children to be affected rather than the type itself may have been the chief factor. This analysis of a large number of cases gives a clear idea of what the physician gains by finding out the type of pneumococcus with which he is dealing. Apart from the possibility of employing serum treatment, if the organism happens to be of Type I. this knowledge does not appear to be of great use in the individual case, the features of the type being obscured by such factors as age, extent of pulmonary involvement, and coexisting disease. A positive blood culture seems to be of more value in prognosis, but a single negative result is not to be relied on, whilst repeated examinations do not seem advisable in a patient who is very ill with lobar pneumonia.

[1] Arch. of Intern. Med., September, 1927.

THE USE AND ABUSE OF ENEMAS.

Dr. L. J. Hirschman in a recent paper[1] points out that it is a pity to obscure the uses of properly administered enemas by too much enthusiasm. They may be used legitimately for cleansing purposes, for rectal feeding and the administration of drugs, for the relief of abdominal distension, and for the direct application of antiseptics and astringents to the mucous membrane in bacterial infections. They may also be employed to lower or raise the temperature of the body, whilst opaque enemas are essential in radiographic examination of the lower bowel. He considers that flushing out the colon by gallons of water has been done too much in recent years. A large quantity of water, he says, not only distends the bowel, but causes hyperæmia and removes the mucus which is the normal intestinal lubricant; regular and too frequent irrigation also irritates the mucous membrane and robs the muscle of the bowel of the solid material which is necessary to maintain its tone. Constipation, in his view, can never be cured by colon irrigation alone, and in many cases in which X ray examination shows evidence of adhesions the method should never be tried. Soap is as irritating to the mucous membrane of the bowel as to the conjunctiva, and should not be given in enemas as it produces an angry red appearance of the mucous membrane which is often mistaken for proctitis; Dr. Hirschman prefers 1 per cent. sodium bicarbonate as a routine. The type of tube used is important, and it should never have a hard rubber or glass nozzle as this is liable to cause injury. The best

[1] Jour. of Amer. Med. Assoc., Sept. 24th.

ube for insertion is a soft rubber urinary catheter 20–24 French scale) with a conical top beyond the perture, and this can be connected to the ordinary nema top. The lubricant should be water-soluble nd is best made of gum tragacanth or Iceland moss. Hycerine should never be used if there is any reason o suspect a raw surface. Olive oil makes subsequent leaning for operation more difficult. The lateral osition is the most convenient posture, he says, for dministering the enema, as the parts can be seen and he weight of the abdominal viscera is away from the owel, so that there is no obstruction to the entrance f the fluid. Opaque enemas have shown that one int of fluid will pass to the cæcum in one minute, and is unnecessary and generally impossible to pass a ectal tube into the sigmoid without using a sigmoidoscope. When fæces are hard or impacted one part of ydrogen peroxide to two of warm water may be sed to disintegrate them, and for the expulsion of atus a 6 per cent. solution of powdered alum is more ffective than turpentine. Dr. Hirschman ends his eries of comments by pointing out that there is o reason to include starch or milk in the nutrient nema, though glucose, as is now generally recognised, ıay usefully be given.

THE PROVISION OF DENTAL CLINICS.

THE fifteenth annual report of the British Dental ospital shows that this beneficent institution is now esponsible for equipping and maintaining four treatıent centres, 12 maternity, child welfare, and ıberculosis dental clinics, and one minor ailment entre. Its object has always been to work in conınction with borough councils, the hospital providing cilities and skilled treatment while the municipalities ovide a sum towards upkeep. In many respects ıis is an ideal arrangement, and it is not surprising ıat an increasing number of councils are taking lvantage of it. The scheme makes for efficiency ecause it does away with all possibility of unwise terference by the laity in professional matters, and ısures that the staff of dental surgeons are chosen r reasons of professional skill, being elected by embers of their own profession who manage the spital. This eliminates the chance of wire-pulling metimes associated with appointments in the hands local political bodies.

There is much concern in the dental profession at e present time over the demand of the approved cieties that dental clinics shall be established to eat insured persons, for there is some reason to ır that these clinics, being largely controlled by the cieties or their nominees, may put economy (at the pense of the dentist) before the real interest of the tients. The British Dental Hospital points out e way in which clinics could be established which uld give the best possible treatment to insured tients and yet allow perfect freedom for the staff purely professional matters. Although established provide treatment for those unable to afford dinary fees, it is not a purely charitable institution e the voluntary hospitals; fees are charged, ough they are modest, and on the whole the instition is self-supporting. Besides offering dental atment it has always aimed at educating the blic in oral hygiene and at assisting public bodies the provision of dental facilities, and useful work both directions is being carried out.

It is probable that few medical men are aware of e extent of the various dental clinics in existence in s country. The school clinics controlled by the ndon County Council and other public bodies are miliar to all, though the immense scope of their rk is imperfectly known. But in addition to these re are dental clinics for tuberculous patients d in connexion with maternity and child welfare ntres, and in the aggregate the amount of treatment ried out by means of public funds is very considere, though still pitifully inadequate to the needs the community. It is certain that the future will a wide extension of public dental service in ny directions. In the treatment of tuberculosis, for instance, care of the teeth is often an essential, both as regards the removal of septic foci and the provision of artificial teeth for purposes of mastication. In antenatal clinics the need is equally urgent. It has been suggested that dental sepsis may be a factor in the occurrence of puerperal sepsis, whilst H. Waller has shown that maternal sepsis affects the suckling infant. The occurrence of widespread dental disease in young children makes the provision of dental clinics for the pre-school period another urgent necessity. It is refreshing to read this account of an institution which has accomplished so much useful work without any generous assistance from the public.

RESEARCH ON HEREDITY.

THE hygienic era in which privies and albuminoid ammonia dominated the field has been replaced by one where bacteriologists have had as much influence as they deserve. The next phase of preventive medicine will presumably be mainly concerned with the heritable constitution of individuals, and we shall really get to grips with the question of nature or nurture. It is a welcome sign of the times that Dr. F. A. E. Crew, director of the Animal Breeding Research Department of the University of Edinburgh, has been appointed to give the Milroy lectures next year, and the annual report of the establishment over which he presides with such productive success contains a number of items of interest to human pathologists, as well as material more immediately germane to the objects of the institution, which was founded primarily to make a genetic analysis of farm animals with a view to their improvement. The tassels on the necks of some goats, for example, which are the best available remnant of a cervical ear and have each a little dermoid cyst at their base, are a heritable character and, with qualifications, their presence is dominant to their absence. A study of the pterylosis of the "hackleless" fowls with naked necks shows that the condition is not due to individual disease, but to an inherited defect in the development of the feather follicles in certain skin areas. Male mice treated with alcohol generate proportionately many more male offspring than normal animals, an observation which we hope will not be translated into human legislation without further consideration. An achondroplasia-like disease has been identified in sheep, analogous perhaps to the "bull-dog" calves of Dexter-Kerry cattle. Without going into details of the many other investigations summarised in the report, we may congratulate the International Education Board on finding such a suitable recipient for the £30,000 which they have given to promote the work of the institution.

A DISCUSSION ON RICKETS.

THE Section of Pædiatrics of the Massachusetts Medical Society recently devoted a session to various aspects of rickets, and a number of well-known authorities expressed their views.[1] Dr. J. L. Gamble reviewed the results of experimental work performed on the blood. As the most likely explanation of the mode of ossification of normal bone, he accepts the hypothesis of J. Howland and B. Kramer that precipitation of calcium phosphate in bone is due to the concentration of carbonic acid being lower in the osteoid tissue than in the plasma. There is no reason, however, to suppose that this reduction of carbonic acid concentration fails to occur in rickets and the defective ossification is more probably attributable to the demonstrable deficiency of di-calcium phosphate in the plasma. The Ca × P product may be taken as a theoretical measure of the severity of rickets and the effect of treatment, but in ordinary cases no change is found in the calcium value, and for practical purposes it is only necessary to estimate the phosphorus. A reduction of the calcium in the plasma occurs in tetany, but it is incidental and

[1] Boston Med. and Surg. Jour., Sept. 8th.

transitory and should not be regarded as showing that there are two independent types of rickets. The initial factors responsible for the lack of phosphorus in the plasma have never been completely determined in spite of much research, including experimental production of rickets in young animals. E. A. Park and others found that the two dietetic factors necessary for its development were (1) low or unbalanced intake of calcium and phosphorus, and (2) lack of vitamin D.

In a paper entitled a Plea for Sanity in the Use of the Modern Methods for the Prevention and Treatment of Rickets, Prof. J. L. Morse suggested that the application of therapeutic measures to alleged cases of rickets was grossly overdone. He considered that the purely radiological evidences of rickets, which were so often regarded as grounds for the use of cod-liver oil or heliotherapy, were so common as to be in all probability physiological, and that consequently a large proportion of current treatment was superfluous and meddlesome. Moreover, the indiscriminate use of artificial sunlight brought with it the possibility both of harm to the patient and exploitation of the public. Dr. K. D. Blackfan referred to a group of cases, clinically and biochemically identical with rickets, in which treatment with cod-liver oil and sunlight was unsatisfactory. He also pointed out that craniotabes, whether it was in reality a sign of rickets or not, was unaffected by these remedies.

A NEW IMMUNITY REACTION.

IN 1917 Rieckenberg discovered that when the blood of an animal, which had been cured of a trypanosome infection, was brought into contact with the causal organism there was a specific adhesion of blood-platelets to the surface of the trypanosomes. More recent investigations of this phenomenon have shown it to be a specific immunity reaction and have extended and modified its scope. It has been shown, for example, that neither platelets nor plasma are essentials, and that what appears to be the same reaction occurs if other small particles—e.g., bacteria—are brought into contact with the trypanosomes in the presence of immune serum. L. J. Davis and H. C. Brown, of the Wellcome Bureau of Scientific Research, investigated this phenomenon early in the current year and showed its practicability as an immunity test and its applicability to spirochætes as well as to trypanosomes. In the current number of the *Journal of Experimental Pathology*, the same authors detail experiments which they have carried out with this phenomenon in an endeavour to differentiate between various species of spirochætes (leptospira). These include a type present in London tap-water, the organism of Weil's disease, the spirochæte isolated by Noguchi from cases of yellow fever, as well as an organism supposed to be causal in the seven-day fever of Japan. The results they publish show that the reaction is one which in their hands gives sharply differentiated results, and whilst the first and last of the organisms we have mentioned behave as independent species, the organisms obtained from infectious jaundice and yellow fever appear identical. This conclusion is in diametrical opposition to the results of Noguchi, who claims on various grounds that the organisms are definitely distinct species. The point raised is rather an important one, as it calls into question the relationship of Noguchi's spirochæte to yellow fever—a problem which cannot yet be regarded as settled. The reaction which we are alluding to is a new departure in the field of immunological tests, and its value is as yet unascertained. From the work of Davis and Brown it would appear probable that it is related to the agglutination test, although it seems to differ from this in requiring the aid of complement, which however need only be present in very minute traces. The authors propose the name of "adhesion phenomenon" for the reaction, which would certainly seem to be a convenient and descriptive term and less barbarous than "thrombo-cytobarin test," which has been used on the continent and which is not accurately descriptive of the reaction as at present performed.

UPWARD MOVEMENT OF THE EYES.

DESPITE the refinement of modern technique and the perfection of biological and diagnostic tests medicine will never be an exact science, and there are many who lament the passing of the intuitive practitioner of an earlier day. These may take comfort from the presidential address delivered by Prof. Edwin Bramwell last Thursday to the Neurological Section of the Royal Society of Medicine. His review of so apparently simple a matter as the upward movement of the eyes well illustrated his claim that the neurologist must ever cultivate and jealously preserve the wide mental outlook of the biologist. The essential joy for most people in a new discovery is the light that it throws from a fresh angle on well-known facts. We have all played "hunt the thimble" and can remember how absurdly difficult it is to see a conspicuous object if only it be placed above the level of the head. We have all had headache after gazing at high-hung works of art in a picture gallery. We also know that individuals vary enormously in the extent to which they employ facial movements. We have all seen a windscreen wiper ticking mechanically across the glass of a car, though we may not have associated it with blinking. We have all had a chance of observing the slow blinking movements which accompany steady mental activity, just as we may have remarked the rapid flickers of the eyelid that go with emotional tension which has no outlet—helpless anxiety or rage. We have heard that the eyes roll upwards during sleep, we have seen those of a tired companion rotate up under the drooping lid. And we cannot have failed to see the unconscious mimicry of people's mannerisms. In these isolated items of knowledge, however, we are as uncoördinated as the new-born infant which (Prof. Bramwell reminds us) can neither blink nor shed tears, though it can turn its head towards a bright light and turns up its eyes when the tired lids droop—a movement of lower order than those acquired coördinated movements which are determined by stereoscopic vision.

It remained for Prof. Bramwell to ponder these things and to string the odd beads together into a coördinate chain of links. Why, he wonders, does a person look upwards in disapproval? The devotional upturning of the eyes is understandable; do we "turn up our eyes," in the modern phrase, to appeal for aid against temptation, or to avoid seeing the disapproved object, or to help us in keeping back the verbal expression of doubt or disapproval? Why, again, do we look upwards in mental abstraction? Is it just a release phenomenon, or is it in the hope of inspiration from above? Prof. Bramwell is convinced that the movement is voluntary and purposeful although it may become a habit. In abstraction the pupils dilate, and it may be that this, together with upturning of the eyes, serves to block out disturbing visual stimuli. Without doubt the majority of such expressional movements are picked up by mimicry just as speech is, and the mannerism, when dissociated from the conditions that originally gave rise to it becomes a tic, a habitual purposeless movement. Upward movement of the eyes, so common as a mannerism, is, in Prof. Bramwell's experience, very rare as a tic, perhaps because it attracts too much attention to favour unconscious imitation. Sometimes petit mal patients turn the eyes upwards, and he suggests that a collection of information on this point might prove valuable for prognosis and treatment. Under surgical anæsthesia deviation of the eyes is unusual, he says, though downward rotation specially deep anæsthesia.

The involuntary upturning of the eyes in epidemic encephalitis appears to be a new symptom, associated exclusively with Parkinsonism, of which it may be the only certain diagnostic sign. Prof. Bramwell describes

he 11 cases in which he had studied the symptom, and concluded from them that a part was played by atigue, by agitation, and by self-consciousness. Hyoscine has, he said, a remarkable effect in meliorating the movements, and it was tempting to uggest that an irritative process played a part in their roduction. His explanation was that the vertical novements of the eye predominated in the brain stem —a suggestion that raises again the question of 'mid-brain epilepsy." The experimenter has never et succeeded in producing upward or downward novement of the eyes from cortical stimulation, nor as vertical rotation ever been recorded during a fit. The experiments of Risien Russell confirmed the uggestion of Hughlings Jackson that in the cortex he lateral movements of the eyes are so much more owerfully represented than are the vertical move- nents that they overpower all others when this area s stimulated. Loss of upward movement is pathogno- nonic of brain stem lesion, says Prof. Bramwell, and his is a far older and more primitive coördinate novement than the lateral movements of which we ear so much. To rotate the eyeballs up is to hark ack to a time when all that we have learned from tereoscopic vision was yet untaught.

EXERCISES FOR CHILDREN.

THE Board of Education has just published four dditions [1] to its series of manuals on physical raining. Nos. 10 and 11 (price 2*d.* each) are short amphlets concerned with the physical education of oys over 14 years of age. They briefly describe the eaning of physical education, whose object is not only to improve the physical condition of the upils . . . but to aid in the development of their ental powers and in the formation of character." o this end it is desirable to include in any scheme ystematic physical exercises, games and athletic orts, swimming and dancing. There must not nly be suitable instruction and accommodation, but he teacher must be thoroughly trained and must ork in conjunction with the medical officer. The oard insists that there should be a daily period voted to instruction of this kind and suggests minutes as the minimum, preferably in the orning. The pamphlets do not describe any of the ercises, but refer the reader to the "Syllabus of ysical Training for Schools," 1919, and to the new Reference Book of Gymnastic Training for Boys" o. 13 of the series, price 3*s.* 6*d.*). This "Reference ook" of 322 pages is devoted to a description of the vedish system, and gives a full and clear account of ndreds of exercises for boys between the ages of and 18, each being designed for some particular ysiological effect. The theory underlying these ercises is discussed, and the best method of teaching clearly set out, often with diagrams. In the intro- ction Sir George Newman shows that recent ucational developments have demanded a wider erpretation of "physical exercises" and explains at the Swedish system has been adopted as the best ethod for giving systematic training "to secure rtain definite results which can be more or less actly controlled." It may be, however, that pendence on specific series of movements for lividual purposes is not physiologically sound, cept in cases of organic, surgical, or paralytic fects; for the rounded back or the protuberant domen is an expression of general unfitness, as o are most of the other minor postural and muscular aknesses commonly met with in children. They best countered by a healthy environment and by natural movements of games or dancing which icken and hold the interest. Systematic exercises, sides requiring much apparatus, may be too pendent on the personality of the teacher for staining attention, whereas simple games can be rted in quite early years and the spontaneous y-instinct of the child can be moulded gradually into the communal habits of self-discipline and coöperation with his fellows. The supplement for older girls (No. 12 of the series, price 4*d.*) consists of two parts, the first being a progressive list of gymnastic exercises and the second describing the organisation and practise of many excellent games. Diagrams are given to show how playgrounds can be marked out so as to permit of several games being played at the same time.

[1] Board of Education, Physical Training Series, Nos. 10–13, H.M. Stationery Office.

THE subject of Sir William Willcox's presidential address to the Medico-Legal Society on Thursday next will be Recent Advances in Toxicology and Forensic Medicine. The address will be given at 11, Chandos-street, Cavendish-square, at 8.30 P.M.

Prof. C. Y. Pearson has resigned his post as professor of surgery at University College, Cork, as from the end of October, but is not retiring from active practice, in the pursuit of which he will have the best wishes of many friends. For a long period he has been one of the best-known members of the surgical profession in the south of Ireland, and some years ago was appointed honorary surgeon to the King in Ireland.

Mr. Lionel Colledge will deliver the Semon lecture for 1927 in the Barnes Hall of the Royal Society of Medicine, 1, Wimpole-street, on Thursday, Nov. 3rd, at 5 P.M. His subject will be the Present Position of Laryngectomy for Cancer of the Larynx, and Mr. Harold Barwell, President of the Laryngological Section of the Royal Society of Medicine, will take the chair.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Comdr. M. W. Haydon is placed on the Retd. List with the rank of Surg. Capt.

W. J. Moody, W. C. Munro, R. D. Stuart, and J. C. Gent to be Surg. Lts.

Proby. Surg. Lt. W. F. Lascelles to be Surg. Lt.

Surg. Cmdrs.: H. E. Y. White to H.M. Yacht *Victoria* and *Albert*; G. S. Harvey to *Pembroke*, for R.N. Barracks, Chatham, for course, and to *President* for course, and to *Vivid*, for R.N. Barracks, Devonport, for anti-gas school; E. C. Holtom to *President*, for Porton Experimental Station; D. H. C. Given to *President*, for three months' post-graduate course; and K. D. Bell to *Victory*, for Royal Marine Infirmary, Portsmouth. Surg. Lts. E. H. Rampling and C. R. Boland transferred to permanent list.

ROYAL ARMY MEDICAL CORPS.

Capts. to be Majs.: J. H. C. Walker, M. B. King (Prov.), and R. H. Graham.

Capts. to be Majs. (Prov.): Bt. Maj. W. Hunt (and remains secd.) and H. S. Moore.

Temp. Lt. P. J. Malone, Dental Surg., to be temp. Capt.

Temp. Capt. H. M. Hart-Smith relinquishes his commn. and is granted the rank of Capt.

ARMY DENTAL CORPS.

Lt. F. H. R. Davey to be Capt.

TERRITORIAL ARMY.

Capt. A. F. Wright resigns his commn. on reduction of estabt. and retains his rank.

Capt. H. M. Anderson resigns his commn. and retains his rank.

C. L. Broomhead to be Lt.

J. G. Weston (late Offr. Cadet, Univ. of London Contgt., Sen. Div., O.T.C.) to be Lt.

TERRITORIAL ARMY RESERVE OF OFFICERS.

Lt.-Col. F. T. Rees, Active List, to be Lt.-Col.

ROYAL AIR FORCE.

Flight Lt. T. W. Wilson is granted a permanent commission in his rank.

A. W. Comber is granted a temporary commission as Flight Lt.

INDIAN MEDICAL SERVICE.

Maj. R. W. G. Hingston retires.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

CCXLVI.

THE TREATMENT OF LOBAR PNEUMONIA, BRONCHO-PNEUMONIA, AND BRONCHITIS IN CHILDREN.

II. THE TREATMENT OF SPECIAL SYMPTOMS.[1]

Sleeplessness.

SLEEPLESSNESS should be prevented from the start. Nothing so exhausts a child as a succession of sleepless nights, and in a severe case the promotion of sound sleep from the outset may turn the scales. When drugs are given the dosage must be effectual; the hypnotic which fails may do more harm than good. In the early stages, and in many cases throughout the attack, potassium bromide and chloral hydrate, or syrup of chloral, are the best. Children take both well. Tepid sponging often helps to send a child to sleep in conjunction with these. If these milder remedies fail the problem of the use of opium and morphia arises. In an adult this question becomes more delicate as the crisis is approached; in the child an even nicer judgment is required on account of the intense and varying susceptibility of children to opium and its derivatives. There is, however, no doubt as to its value, and in some cases life may depend on correct and timely dosage.

To a child of 3, 1 minim of tincture of opium or 1 gr. of Dover's powder may be given. The dosage in each case must be judged with especial reference to the amount of respiratory distress. It is well to err on the side of under dosage at first and repeat if sleep is not obtained. Morphia is best given hypodermically combined with atropine, which tends to diminish respiratory distress; with the same caution morphine hydrochloride gr. 1/20 may be given to a child of 3. Heroin is said to have a less depressant effect on the respiratory centre, but I prefer to give morphine itself rather than be lulled into a false sense of security by giving heroin.

Pain.—Pyrexia.

Pain in the chest may cause restlessness and lack of sleep and can be relieved by local applications. Since the soft bony framework of a child's chest is easily compressed, any heavy application likely to impede respiration should be avoided. Antiphlogistine or thermogene wool applied to the affected side, or methyl salicylate ointment, are the best local applications. In older children pain from a localised patch of pleurisy may be relieved by immobilising the affected side with strips of adhesive plaster. A mustard leaf will sometimes give relief.

Pyrexia.—Antipyretic drugs should not be given. For a prolonged temperature of over 104° F. tepid sponging is effective and comforting. Start with water at a temperature of about 90° F. and cool while sponging by the addition of cold water. The temperature of the child should be watched and sponging should not be continued after this has fallen to 101° F. by the rectum.

Cardiac Failure.

Much may be done to lessen the strain upon the heart by preventing respiratory distress. When any tendency to cyanosis shows itself, or the secretion in the tubes appears to be interfering with easy respiration, atropine should be given. By drying up excess of secretion and causing the bronchial tubes to dilate, this allows air to pass freely into the alveoli and oxygenation is facilitated. Children stand atropine well; gr. 1/100 may be given hypodermically three times a day to a child of 3, and in severe cases four-hourly. The value of stimulants is problematical. In weakly children, or those in whom there is any abnormal rapidity or feebleness of the pulse, it is well to give a stimulant from the start.

The following is a useful mixture, given three times a day for a child of 3: spiritus ætheris ℥v., spiritus ammon. arom. ℥v., aqua ad ℥i.

There is considerable difference of opinion as to the value of brandy in treatment. Some authorities maintain that it is unnecessary and may even be harmful. Personally, I find it a most valuable stimulant in severe cases and have never observed any ill-effects from its use. Thirty minims may be given four-hourly to a child of 3 directly any tendency to cardiac weakness appears; the dose may be increased to one teaspoonful or more if necessary. Brandy should never be given until there is definite need of a stimulant. Adrenalin appears to be of value in some cases; ℥v. (1 : 1000) may be combined with injections of atropine. Strychnine should be given cautiously to children who are very sensitive to it. In cases of sudden cardiac failure a small and isolated dose is of value; it should only be repeated at long intervals. The value of camphor as a cardiac stimulant is indefinite. For a single dose gr. ½ dissolved in olive oil may be given intramuscularly to a child of 3, or gr. ¼ if the dose is to be repeated at six-hourly intervals. Digitalis is often given to children, but I have never observed any benefit from its use. For collapse in children under 2 years old a mustard bath is the most valuable stimulant. One heaped tablespoonful of mustard is added for each gallon of water in the bath, which should be as hot as can be safely borne, the body being completely immersed for from two to five minutes. The child should then be dried quickly in a warm towel and put straight into bed.

Expectorants.

In mild lobar pneumonia these are not indicated during the first few days. When there is bronchitis or the cough becomes dry and irritating, small doses of ipecacuanha, squill, and ammonium carbonate are useful. A linctus containing a teaspoonful of equal parts of glycerine and syrup of virginian prune, or of equal parts of compound tincture of camphor, oxymel of squill, and syrup of balsam of tolu is good. The bronchitis kettle will often relieve a dry and irritating cough, especially if there is some laryngitis. When there is obvious respiratory irritation from excess of secretion in the bronchial tubes, which an ineffective cough fails to relieve, a single emetic dose of ipecacuanha is of great use.

Fresh Air Treatment.—Oxygen.

Treatment in the fresh air is unnecessary for the simple case of lobar pneumonia. In certain cases of severe lobar pneumonia and broncho-pneumonia with cyanosis and much respiratory distress, removal to the open air causes immediate and marked improvement. If a spot well sheltered from the wind and rain is obtainable in a garden or on a balcony and the child is in the hands of an efficient nurse, the treatment is very valuable. In the absence of these facilities it is better avoided.

Oxygen Administration.—For patients with cyanosis oxygen is useful. It should be given for periods of 15 minutes once every hour, through a catheter introduced into the nose. Administration by means of a funnel held a few inches from the nose and mouth is a bad method and probably of no benefit whatever.

Specific Treatment.

The serum treatment of lobar pneumonia has so far only been doubtfully successful, and that only in cases due to Type I. pneumococcus. To get the maximum effect it must be given as early as possible in large amount, and by the intravenous route. In many children it is impossible to obtain sputum to determine the type of infecting pneumococcus and serological tests are necessary. The giving of serum

[1] The first section of this article—General Considerations—appeared last week.

by the intravenous route to children is very difficult, especially in private practice, and as the infection is much less dangerous than in adults, the scope for specific treatment is less. It may possibly be of use in older children when means for rapid serological diagnosis are at hand.

Complications.

Empyema.—In pneumonia, from the start a close watch must be kept for the development of an empyema. In children the physical signs of this complication are often misleading. In the early stages the most definite sign, displacement of the heart, is absent, while the others are often indefinite. Breath sounds are often not diminished over a thin layer of pus, and high-pitched tubular breathing is often present. Owing to the ease with which sounds are conducted in a child's lungs the sounds may be similar but slightly less on the unaffected side, and it is easy to suspect the empyema on the wrong side. For these reasons the physical signs are less helpful than in an adult, and in cases of doubt it is wiser to make certain by exploration. Should the temperature continue after pus has been found and evacuated, the possibility of a double empyema must not be forgotten. Before resorting to exploration great care must be taken to exclude other causes of continued pyrexia. Examination of the ears, throat, or urine is sometimes forgotten. The treatment of empyema has already been dealt with in this series.

Abdominal distension should be treated in its early stages, for once paralytic ileus has developed very little can be done. A less fluid diet should be given and an abdominal binder worn. Turpentine enemas, rectal wash-outs, or the passage of a high rectal tube may assist in the evacuation of flatus. If distension increases pituitary extract may be given; 0·20 international units intramuscularly is a safe dose for a child of 3. For persistent vomiting the stomach should be washed out.

Convalescence and After-treatment.

Fresh air and avoidance of chill, nourishing food, a tonic, and a graduated return to normal life are the chief convalescent requirements. A holiday in the country or by the sea may be needed.

An attack of pneumonia in a child is an important fact in its medical history and should never be forgotten, especially during a future attack of measles, whooping-cough, or influenza. The possibility of a residual fibrosis of the lung must be remembered, particularly in a child who has had the good fortune to recover from an attack of broncho-pneumonia.

LESLIE B. COLE, M.D. Camb., M.R.C.P. Lond.,
late Resident Assistant Physician to
St. Thomas's Hospital.

Special Articles.

THE NORMAN KERR MEMORIAL LECTURE ON THE TOBACCO HABIT.

Delivered on Oct. 11th before the Society for the Study of Inebriety

BY PROF. W. E. DIXON, M.D., F.R.S.,
ASSESSOR TO THE REGIUS PROFESSOR OF PHYSIC, CAMBRIDGE.

[Prof. Dixon commenced by saying that Dr. Norman Kerr, in whose honour the Memorial Lecture was delivered, had himself written on the evils following the tobacco habit. After a brief sketch of the history of tobacco, the circumstances in which it was introduced into Europe, and the various attempts at prevention by authorities, royal, clerical and military, the lecturer pointed out that smoking had become universal throughout the world, adding that in this country no serious attempt had been made to determine its effect on the public health. He continued:]

Composition of Tobacco Smoke.

The smoke emitted from any smouldering vegetable matter, including tobacco, contains ammonia gas and pyridine or pyridine derivatives, and it is these substances which produce the irritation of mucous surfaces not infrequently observed in those who smoke; these bodies are responsible for the morning cough, the irritation of throat and tongue, and the conjunctivitis of the cigarette smoker. They are in every respect objectionable products and add nothing to the pleasure of smoking. If they could be excluded from the smoke it would be all to the benefit of the smoker. Other dried herbs such, for example, as coltsfoot leaves, at one time sold as a harmless boy's tobacco, often produce more pyridine when allowed to smoulder than tobacco, but they have none of its calming effects.

The pyridine bases are oily volatile liquids, intensely irritant, but compared with nicotine of a relatively low toxicity.[1] Their poisonous nature I have demonstrated on young volunteers who were required to smoke coltsfoot leaves; after smoking for some time, 20–30 minutes, they suffered from nausea, vomiting, and diarrhœa, with all the signs of early shock.[2] Nevertheless in tobacco smoking the only serious effect of these bodies is the local irritation, since their specific effects are insignificant in comparison with those of other substances which are present in this smoke.

Carbon Monoxide.

Another substance obtained from the slow combustion of almost any vegetable matter, including tobacco, is carbon monoxide, which is also the poison of coal-gas and the exhaust gas from motor-cars.

In New York and Newhaven, where the motor traffic is dense, CO can be detected in the air of the streets.[3] The traffic control men not infrequently suffer from headache, slight nausea, muscular weakness and rapid pulse, which are the usual symptoms of CO poisoning. Wilson and others [4] examined the blood of 14 foot traffic patrol men and found that their blood contained from 0–30 per cent. of CO, whilst six of these men showed values of from 20–30 per cent. Two other symptoms which are also prevalent are dizziness, and, more rarely, dimness of vision.

The U.S. Bureau of Mines made experiments to determine the CO present in a confined space after intensive smoking, and found that the CO concentration of the air of the room did not rise to more than 0·01 per cent., and the maximum blood saturation of the subjects exposed to this atmosphere was only 5 per cent. Nevertheless this is more than enough to affect seriously sensitive people. When the amount of this gas is determined in the smoke of cigars, cigarettes, and pipes under conditions simulating as far as possible those obtaining during ordinary smoking, the figures obtained are somewhat alarming.[5] The cigarette smoke yields from ½ to 1 per cent.; the pipe 1 per cent. or more, and the cigar 6 to 8 per cent.; this last, as Prof. Armstrong points out, is roughly the proportion of CO in the coal-gas of the South Metropolitan Company. The amount of CO varies naturally with the rapidity of the smoking and the closeness of the packing—the quicker the smoking the more CO.

Tobacco smoke, however, reaches the mouth freely diluted with air, and the amount of CO absorbed from the buccal cavity is negligible, so that pipe and cigar smokers who do not inhale have little to fear from this poison. Cigarette smokers who inhale would absorb a large proportion of the CO which reaches the lungs, since the affinity of CO for blood is more than 200 times that of oxygen. Cigarette smoke as it reaches the mouth of the smoker may contain as much as 7·2 to 25 parts of CO in 10,000 parts of air (Baumberger). Inhaled for one hour at the rate of five puffs a minute this should be enough to affect

appreciably the blood hæmoglobin. Many years ago Fokker asserted that animals placed in an atmosphere containing tobacco smoke died from CO poisoning. Hartridge [6] found 6 per cent. CO in the blood in one cigarette smoker who was by no means excessive in his habits. The normal healthy man does not in most cases show symptoms of CO poisoning until 15 to 20 per cent. of his hæmoglobin has been fixed and put out of action. Yet there are many people who show a supersensitiveness to this poison, just as some of us have some idiosyncrasy for quinine or iodides, and so it is not difficult to appreciate why cigarette smokers may exhibit a syndrome indistinguishable from that of mild CO poisoning.

The toxic concentration of CO in the atmosphere is about 0·05 per cent.; in men exposed to dilute concentrations such as 0·02 per cent., the degree of hæmoglobin saturation would be perhaps somewhere near 20 per cent.[6a]

Nicotine.

The third and by far the most important constituent of tobacco is the volatile alkaloid nicotine. The effects of cigar and pipe smoking are due practically entirely to nicotine which exists in tobacco combined with organic acids. During smoking these salts are largely dissociated, a part of the nicotine being burnt, and a part passing in the smoke as free nicotine. The drier the tobacco the greater the destruction of the nicotine. Moist tobacco produces much more serious effects than dry tobacco, and it has been stated that the moistness of the tobacco is responsible for many of the evils. The water content of the tobacco is much more harmful to the smoker than the original nicotine content of the tobacco.

During the slow combustion of a cigar, as in ordinary smoking, there is an area immediately behind the point of combustion in which the water and other volatile substances condense. During aspiration the hot gases are drawn through this hot moist area and carry with them the volatile principles of which nicotine is the most important. Hence the smaller this moist area behind the point of combustion, which means the cooler the smoke or the more complete the combustion, the less likely is the smoke to contain volatile toxic bodies. It follows that a cigarette or slender cigar which is well cooled will yield fewer of these products than a thick cigar, and many smokers can testify that a fat cigar has a much greater effect than a long slender cigar of similar tobacco. This also explains the unpleasant effects of relighting a half-finished cigar or pipe.

The same principle is exemplified by the following fact. Virginian tobacco leaf from which cigarettes are made often contains double the amount of nicotine that is present in Manilla cigars. Yet when an equal weight of the cigarettes and cigars are smoked the total cigar smoke contains double the amount of nicotine present in the cigarette smoke. The condition of the tobacco and the form in which it is smoked are more important factors in determining the amount of nicotine in the smoke than the amount of nicotine present in the original tobacco.

The species of plant mostly used is *N. tabacum*, but several other species are employed, thus *N. rustica* yields Turkish tobacco; different varieties of tobacco from the same species also show different amounts of nicotine. During the process of curing the leaves, which consists in exposing them under cover to a considerable degree of heat, important chemical changes occur, the leaves become moist and their fragrance alters. There is much room here for further investigations with a view to producing a tobacco which when smoked would yield in the smoke the minimum of alkaloids, pyridine, &c., whilst retaining its aroma. Tobacco may contain anything from 1 to 8 per cent. of nicotine; Havana tobacco has about 1·5 per cent.; Maryland, 2 per cent.; Virginia, 6 per cent.; Kentucky, 8 per cent.

Amount of Nicotine in Smoke.

The amount of nicotine in tobacco is no criterion of the amount in its smoke. For example, mild Honeydew contains only 1·6 per cent., whilst Cavendish may contain as much as 3·8 per cent.; if these two are smoked under identical conditions the Cavendish naturally yields the larger amount of nicotine in the smoke. But Cavendish smoked in a cool pipe, or one provided with a filter, will affect the smoker less than the Honeydew smoked in a hot pipe. In the churchwarden pipe the opportunity for the nicotine to condense is such that the smoke is almost freed from the alkaloid; and I have already pointed out that in cigar and cigarette smoking the degree of moisture, the tightness of packing, and the thickness of the cigar or cigarette are the most important factors in determining the amount of nicotine which will be present in the smoke.

Habermann [7] and Ehrenfeld state that two-thirds of the nicotine of some kinds of cigars passes over in the smoke; with other brands as little as one twenty-fourth passes over. Lehmann [8] obtained nicotine from the air of a room in which tobacco was being consumed, showing that the smoke puffed out is by no means denuded of all its alkaloid. He thinks from his calculations that only about 1·4 mg. nicotine are absorbed from a cigar. This figure depends on so many conditions that it cannot be accepted; for example, the length of time that the smoke is held in the mouth, thus affording time for absorption, would exert an enormous influence. Our own observations suggest that the figure is ten times too small. The collapse which I have seen in youths smoking Manilla cigar could not have been obtained by the absorption of such an amount.

Asherton, 1919, says that 6 to 8 mg. of nicotine reach the mouth from a cigarette smoked in the usual way. We are not told, however, how much of this is likely to be absorbed. In our own observations using a standard Virginian cigarette weighing 1 g. and aspirating the smoke through solvents once in 12 seconds and using only three-fourths of the cigarette, it was found that 3 mg. of nicotine were absorbed. It must not be assumed that all this is necessarily absorbed into the system, but in the case of an inhaler most of it certainly is, perhaps 75 per cent., since expectoration is no longer permitted and loss can occur through the exhaled smoke only. Hence if a cigarette smoker were to puff ten cigarettes on end he would certainly absorb 20 to 30 mg. of nicotine, enough to produce a profound physiological effect, though administered in this way perhaps 10 to 15 times under the lethal dose. The amount of nicotine in pipe and cigar smoking is much higher. In our experiments cigar smoke contains about twice as much nicotine as cigarette smoke.

Other constituents of tobacco smoke are less important. The solids of cigarette smoke weigh about 10 per cent. of the tobacco burned—that is 80 mg. for each cigarette. Cyanides and sulphocyanides are present in traces, arsenic is a constituent of American tobaccos in amounts many times greater than those permitted in foods. Pipe tobacco is reported to contain the equivalent of from 0·05 to 0·27 gr. As_2O_3 per pound.[9] When smoked probably about half this will be absorbed.

These facts show that nicotine is a most important constituent of tobacco. It is one of the most fatal and rapid poisons known; it acts as quickly as prussic acid, and 2 drops placed on the tongue of a dog will kill it almost immediately. The lethal dose for a man is 60–120 mg. The nicotine present in one cigar if injected intravenously would represent two fatal doses to man. It is therefore somewhat remarkable that fatal nicotine poisoning is not more common. Nevertheless, the careless use of tobacco infusions as enemas, the occasional swallowing of tobacco leaves or even carrying tobacco leaves next to the skin for smuggling purposes, have all led to fatal results. Tobacco has also been used for criminal purposes, but as it does not appear to undergo fermentative changes in the cadaver it can be detected in the bodies of animals three months after death.

[Prof. Dixon then reviewed the subject of denicotinised tobacco, the various methods of removing

icotine suggesting to him that great opportunities ill existed for the investigation of tobacco.]

General and Specific Action of Tobacco Smoke.

Tobacco used in any form possesses irritant pro-erties; this is, of course, obvious with snuff, the use which depends on stimulation of the fifth nerve-ndings. The same action occurs in chewing which xcites reflex salivation. If 5 or 6 gr. of tobacco are vallowed vomiting occurs. Tobacco is irritating lso to the skin, and the alkaloid in it is readily bsorbed. Many cases of poisoning are on record, nd I have in mind particularly a child of 8 years ffering from tinea capitis to whose head the expressed ice of tobacco leaves was applied; the treatment as shortly followed by the death of the child. everal cases of tobacco poisoning from the skin are ported in the *British Medical Journal* for 1926. arvin, in 1913, described the case of a girl aged years who died 45 minutes after receiving an enema 24 gr. of tobacco. From an examination of such ses it is clear that death may occur from three inutes to several hours, after using tobacco as an ema or for application to the skin.

Continuous smoking for several years not infre-ently produces signs of chronic irritation in the outh, throat, and larynx—sore tongue, morning ugh, hoarseness, tonsillitis, or chronic bronchitis. believe that these effects are most marked in the garette inhaler. When the smoke is concentrated one portion of the tongue for many years, which ay occur especially in pipe smoking, this constant itation is said to favour the formation of epithelioma the lip and tongue if the quantity consumed is ge or the smoker predisposed. The evidence in pport of nicotine taking any part in this action is rtainly not conclusive. Nevertheless, Bottini men-ons 100 cases of cancer which he saw, including three omen, which were caused by smoking or chewing bacco. On the other hand, the Registrar-General's port shows a remarkable fact, to which attention s not been drawn previously, that tobacco manu-cturers have a lower death-rate from cancer than ose of any other trade.

Smoking is reputed amongst the public to have an tiseptic action, and is sometimes indulged in minally for this purpose. Pepys describes the use tobacco during the plague, and its use was com-lsory at Eton in 1721 as a prophylactic against he apprehension." Puntoni[12] and others have own that tobacco smoke has a strong disinfectant ion in vitro. When the smoke is drawn into the uth, however, the action is attenuated by the iva and mucosa, and its antiseptic effect is negli-le. The action in vitro is not influenced by filtering e smoke free from nicotine by passing it through ton-wool.

Smoking is, however, indulged in by man because its sedative action, and this is due solely to nicotine sorption. Nicotine stimulates all nerve-cells roughout the body without exerting any kind of ective action, and the stimulation is followed by pression. The time the stimulation lasts depends various factors, but as a rule it coincides with the sorption of the nicotine—that is, with the period active smoking. Both the pleasure and evils of oking are intimately connected with nicotine. rphine, heroin, cocaine, and the other drugs of diction have a selective action on the central rvous system alone; nicotine is different, it acts o on the autonomic nervous system, and it is this ion which produces objectionable effects in the sitive or excessive smoker.

Alimentary Canal.

The commonest symptoms of smoking are loss of petite and chronic intestinal catarrh. The smoker's k of appetite, Sir Humphry Rolleston thinks, is t altogether an evil, since it limits the consumption unnecessary food. Nicotine and tobacco smoking, stimulating the autonomic ganglia, increase the retion of the alimentary glands and later, after the smoking has ceased, depress them; hence the salivation during smoking and the dry mouth the following day. The same fact is true of gastric secretion. Experiments have been made on dogs with a Haidenhain's fistula, by means of which the secretion of gastric juice may be collected and examined as desired. Injections of nicotine, or saline solution through which smoke has been passed, into these animals afford a means of determining accurately the effect on gastric secretion. Both affect the dog in the same way and cause at first a decided increase in gastric secretion.[13] It is well recognised that in certain persons excessive smoking leads to this gastric hypersecretion; hyperacidity is the most common disturbance and gastritis acida is one of the most frequent results. Hurst[14] believes that tobacco smoking is one of the most frequent causes of hyperchlorhydria. Rolleston[15] lays considerable stress on the relative sensitiveness of the individual as an important factor in determining whether or not a heavy smoker will pay the penalty of gastric disease.

On the musculature of the alimentary canal the action of tobacco is equally well marked, the automatic movements are first inhibited and later augmented as a result of stimulation and later depression of the autonomic nervous system.[16] The inhibitory stage is almost coincident with the period of smoking, and is associated with contraction of the pyloric and ileocolic valves. Stimulation of the sympathetic nerves causes inhibition of the whole alimentary canal with the exception of these two valves which are contracted. The dyspepsia often following on a hypodermic injection of morphine is probably due to this pyloric contraction which delays the passage of food. Morphine in this respect shows some similarity to nicotine.

The mild laxative action of tobacco smoke may be explained by the ultimate depression of the inhibitory cells whereby the motor nerves assume an undue influence on the automatic movements. Hunger is due to certain well-recognised automatic contractions of the stomach; smoking definitely inhibits these. Hence continuous smoking staves off the pangs of hunger and acts in this respect like the drugs of addiction, cocaine and morphine. Careful experiments which have been made on habitual smokers and non-smokers with the aid of bismuth and X rays show that the effect of smoking a cigar is to stop the normal automatic movements of the stomach within 15 minutes. The inhibition continues until about three minutes after smoking has ceased, when the contractions recommence.[20] In these experiments it was also shown that nausea and vomiting from excessive absorption of nicotine may occur at a time when the stomach movements are completely inhibited.

Tobacco smoking, then, has a very definite action on the alimentary canal. In certain sensitive people it produces effects which, according to Hurst, favour the production of duodenal ulcer, whilst Wagner[21] insists that excessive smoking can produce all the subjective and X ray appearances of this condition.

Effects on the Circulation.

The considerable use of tobacco in any form invariably produces certain definite effects on the circulation which cause no inconvenience of any kind to the subject; these should be distinguished from other effects which only occasionally occur, but are then often sufficiently distressing to induce the sufferer to seek medical advice.

Under the first group must be included changes in the pulse-rate. All observers are agreed that the use of tobacco increases the pulse-rate from 5–10 beats a minute, and in the case of the man who is continually smoking the increase of rate becomes permanent, but this condition produces no apparent disadvantage. When the novice or moderate smoker puffs a cigar the rate of the pulse increases in a few minutes. Lee,[19] working in my laboratory, demonstrated this clearly both in the novice and moderate smoker under strict experimental conditions. In another series of experiments 28 young healthy smokers were required

to smoke a single Turkish cigarette; the pulse-rate increased in all but four, and 16 showed an increase of more than eight beats per minute.[20] Hesse[21] obtained similar results with cigars on 25 patients suffering from various chronic diseases.

During the war it was generally asserted that excessive smoking, particularly of cigarettes, was the common cause of the so-called D.A.H. Observations were made which showed that the average pulse-rate of the patients during smoking was nine beats per minute higher than before smoking; in ten healthy controls it was six higher.[22] As there can be no question that the effect is due to nicotine, inhalers of cigarette smoke should show more acceleration than non-inhalers. In Parkinson's 20 patients the 10 inhalers showed an average increase of pulse-rate of 11 per minute and the 10 non-inhalers of 7.

This increase in the pulse-rate is associated with a small rise in blood pressure; for the moderate smoker the rise does not usually exceed 20 mm. of Hg systolic and 8 mm. of Hg diastolic, and is usually even less. The rise begins a few minutes after the smoking has commenced, and is maintained throughout the smoking period.[21 23] It is only in the case of the novice or after excessive smoking that the blood pressure falls to any extent below normal after the smoking has ceased; but under certain conditions the fall may be so severe as to cause all the signs and symptoms of shock or collapse.[22]

Observations have also been made to determine the effect of smoking continued over a period of six months. Nicolai and Staehelin smoked six or eight cigars a day for six months. They then gave up smoking except for an occasional cigar for a further six months. Their average pulse-rate was 74·5 compared with 81·8 during the smoking period.[24]

These changes from the normal are after all usually small and give rise to no symptoms, but the evidence available suggests that they cannot be regarded with indifference. It is a maxim with those who are in training for athletic events that smoking must be entirely eschewed. This prohibition, no doubt adopted in the first place as the result of experience, has become a tradition. In Nicolai's experiments the acceleration of the pulse which occurred after the performance of a measured amount of work with the ergograph was considerably greater during the smoking period, while recovery to the normal rate was much slower than during the period of abstinence. Parkinson and Koefod also showed that smoking a few cigarettes can render healthy men more breathless on exertion, and that this effect was marked in soldiers suffering from D.A.H. This means that the heart even of the moderate smoker is less efficient in periods of strain. It is possible, then, that the prohibition of smoking for athletes is dependent on this vascular effect. With present knowledge it would be mere speculation to attempt to gauge the significance of this factor when continued over many years.

Of the more definite effects which cause patients to seek advice are palpitation and arrhythmia which are relatively common in the young; they disappear if the smoking is stopped, though in pronounced cases, as the late Sir Clifford Allbutt pointed out, only after the abstinence has been continued for many months. The arrhythmia is functional and is usually due to extra-auricular systoles. Neuhof mentions fibrillation and flutter and sino-auricular block also; the block in the case he illustrated disappeared three days after the smoking ceased,[25] but such cases must be very rare. Rolleston says that arrhythmia may occur at any age, but is more noticeable after 50; this may be due to a loss of tolerance which is known to occur in later life, and to which I must refer again. Another symptom which may arise from excessive smoking in later life is anginoid pain, which, according to Osler, rarely approximates to true angina. Turney says that it is associated with vaso-motor disturbances and tends to occur after meals or in the night rather than after exertion.

Arterio-sclerosis is easily produced in animals, especially rabbits, by the injection of nicotine, and we have ourselves produced marked arterial change in the aorta and larger arteries of animals by administering to them "smoke water"; but I do not think that these experiments are proofs that smoking lead to arterio-sclerosis in man, although there is a consensus of clinical opinion that immoderate smoking favours arterio-sclerosis. Pawinski[29] states that 42 per cent. of 1000 cases of coronary sclerosis had histories of immoderate smoking.

In severe cases the cardiac irregularities may lead to syncope, and an undue proportion of sudden deaths occurring during the middle period of life without any definite lesion being found post mortem is said to be found in heavy smokers.[13] As even the most moderate smoking places some disability on the heart, trifling though it be, it may well be that this view deserves serious consideration.

Central Nervous System.

Nicotine is essentially a nerve poison, but so far consideration has only been given to its action on those cells on the course of the autonomic system, and the action is responsible for the digestive and circulatory effects. But nicotine affects the brain and cord also; it increases spinal reflexes and removes certain inhibitions.

I have already drawn attention to some of the effects of excessive cigarette smoking in the young, the attacks of giddiness and the tremors. A large experience of examination papers of medical students enables me to pick out with certainty the heavy cigarette smokers from the irregular character of their writing. If the habit is broken the writing at once improves and the vertigo disappears. These effects are exactly those of CO poisoning and I believe can be explained on this basis.

Habitual smokers are agreed that the weed acts as a mild sedative to the central nervous system; this type of action is of a somewhat remarkable character and may offer an explanation of the widespread use of tobacco. Physical fitness or well-being is determined by our feelings, which are the result of sensations. If response to sensation varies from the normal, whether on the hypo- or hyper-side, remedy causes a return towards the normal, and smoking is said to exert a similar effect though of a more marked description, and hence the sedative effect of tobacco in conditions of irritation, and the stimulating effect in those of weariness and depression. The experiments from which these statements were deduced consisted in determining the threshold to single breaks induction shocks of two fingers immersed in saline solution. After this figure was determined the subject smoked two cigarettes and his threshold was re-examined. If the initial threshold was low, smoking depressed it on an average 72 per cent. On the other hand, if the initial threshold was high, smoking lowered it on an average 28 per cent. Suitable controls were made with cubebs cigarettes which always acted as a stimulant. This shows also that the tobacco action is due to nicotine.[27] In the same way smoking tends to nullify the slight sensory depression produced by the veronals, antipyrine and other hypnotics.[28] So that it may well be that tobacco is helpful when the sensory threshold is abnormal.

Mental Efficiency.

Mental efficiency tests on the whole have not been very convincing. In Berry's experiments[29] smoking enabled his subjects to do more rapid and correct arithmetical addition, but the nicotine here was not the determining factor, the aroma had some effect, and holding an unlighted cigar or chewing substances like gum all had some effect. Turney lays much stress on the importance of these tics. Carver's experiments consisted in applying eight established psychological tests in a number of people to determine whether cigars or cigarettes would influence their judgment and response to stimuli. The results suggest that smoking lowers the accuracy of fine coördinated reactions and association-thought processes. The speed of complicated reactions was, how-

ver, unchanged. The habitual smoker when deprived f his smoke for some hours showed diminished ccuracy.[39]

Many observations have been made by merely omparing the efficiency, mental or physical, of mokers and non-smokers. All these experiments eem to me so difficult to interpret that their value is egligible. Generally they show some inferiority of he smokers. This is true of observations of scholarhip,[31] endurance of telegraph workers,[32] scholarship nd physical efficiency at Antioch,[33] and resistance to uberculosis.[34] The apparent inferiority may be the ause or the effect of the tobacco habit. Those who re handicapped by neurosis or other form of inferiority ould succumb most easily to the euphoria of smoking.

The action of smoking on the performance of outine muscular work has also been examined, and has been found that habitual smoking has no bvious effect on the output of work amongst glass lowers, a moderately strenuous physical occupation, lthough chewing greatly diminished the output.[35] n the other hand, Lombard's experiments show that moking diminishes muscular endurance both at the ge of 35 and 60.[36] Using the ergograph Palman ound that cigarette smoking at first increased uscular work, but that fatigue set in earlier and the otal work was less. A curious periodicity occurs in ie ergograph records after smoking, due to fatigue depression of the central nervous system.[37]

It must be conceded that ordinary smoking in ormal people does not lead to nervous disturbances. xcessive smoking is another matter and may produce nxiousness and insomnia. Every smoker knows that stronger cigar than usual may keep him awake, ough usually the effects of smoking are soothing nd favour sleep. Neurasthenic subjects are easily ffected by smoking, they are continually breaking f their smoking and returning to it again in a few eeks. They suffer from headaches, dizziness, and idden sharp attacks of pain in the head, over the ecordial region or in the stomach, which cease when ie smoking is stopped.[38] Neuralgias generally stated be localised about the intercostals, humoral and apular region are rare but of importance, as until e cause is removed the pain continues.

The action of tobacco, then, on the central nervous stem when used in moderation on the whole does harm, and in subjects showing deviations from the ormal it makes for good.

Amblyopia.

Tobacco amblyopia stands alone in mischiefs so ave. It was noticed by Mackenzie in 1835, and bserved accurately by Hutchinson in 1864. The ght gradually becomes dim with central scotoma, me derangement of accommodation and often latation of the pupil. This condition is associated th retrobulbar optic neuritis, and recovers if oking is stopped; when degeneration has set in, wever, abstaining from nicotine will only arrest ther progress.[38a]

At one time those engaged in the manufacture of bacco, in consequence of the absorption of powder, ffered from visual troubles. Dr. Norman Kerr ated "in 3000 workers in a tobacco factory 150 had e defects, 45 being seriously affected." Galezowski, Schweinitz, and many others have verified these ts. Nevertheless with improved sanitary arrangeents these effects have now disappeared.

Androgué, in a critical analysis of 48 cases of mblyopia from axial neuritis due to nicotine, says e quality of the tobacco is at fault; it was imperctly dried, which means that the percentage of cotine in the smoke is much greater than usual.[39]

[Prof. Dixon concluded by referring to what is own of tolerance to the tobacco habit, and analysed e reasons for smoking, and concluded as follows:]

Conclusion.

Tobacco smoking serves as a mild stimulant followed by a slight degree of narcosis, the supersensitive come calm and lose their irritability, and the dull and apathetic are stimulated. The physiological evidence clearly points to this effect, but the explanation has yet to be learned. But smoking leads to digestive and circulatory disturbances. There is an increasing impression amongst clinicians that the insidious action of nicotine spread over many years of continuous absorption is responsible for at least some of the cardiovascular diseases so common in middle and later life.

It may be argued that if nicotine adds to the agreeableness of life, why not use a path so pleasant? In persons of vivid sensations, to calm the commotion of conflicting sensations may be beneficial, even to the higher faculties; in the dull and listless to stimulate thought must be beneficial. It may well be that living in a civilisation such as ours, under the strained conditions imposed by residence in cities, the ordinary man shows in his nervous responses variations from the normal, and on such tobacco exerts a beneficial function. To what extent strict moderation in the use of tobacco leads to vascular degeneration is uncertain: is it the rule or the exception? This is the vital question to which we require an answer, and upon this answer something of the well-being of the nation depends.

In conclusion, I venture to suggest that the collective sagacity of this Society and that of the medical profession as a whole could occupy itself with no subject more important to the nation than that of tobacco smoking.

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A NEW ISOLATION HOSPITAL AT SOUTHPORT.

ON Oct. 14th Sir George Newman, on behalf of the Ministry of Health, opened the new isolation hospital built by the Southport Corporation Health Committee. The new building, which he described as something unique of its kind, replaces two old hospitals: a temporary isolation block in Moss-lane and a small infectious diseases hospital in Shaftesbury-road, now used for tuberculosis. The site of 170 acres was purchased in 1923, but the coal stoppage last year caused delay in completing the building. The hospital stands on the highest part of the land and occupies 12 acres, the rest being let as a farm. There are two scarlet fever blocks with 42 beds, a diphtheria block accommodating 20 patients, and an observation and discharge block. There is also a tuberculosis pavilion (Fig. 1), entirely cut off from the other part of the hospital and divided into two sections, for men and women. Twenty-two patients can be taken here, and outdoor shelters provide eight more beds. It is provided with two recreation-rooms and a common dining-hall, and the whole building is laid out in an up-to-date manner. The floors are covered with wax-polished oak blocks and the wide oak doors are made so that the upper glazed parts can be used as windows and opened in any weather. The usual offices include a special steriliser for sputum mugs.

The fever blocks (Fig. 2), as well as the tuberculosis building, are designed to obtain a maximal amount of sunlight. On the south side of each is a verandah wide enough to take the beds. Each pavilion has two single wards for private patients, and there is a day room in each for convalescents. Other small wards take two or four patients. The observation block has eight single rooms, opening on to a southern verandah. The dividing walls are fitted with large plate-glass panels for observation. Ample and well-segregated sanitary accommodation is provided, and special combination bedpan, bottle, and mackintosh sinks with foot control taps are fitted in each annexe.

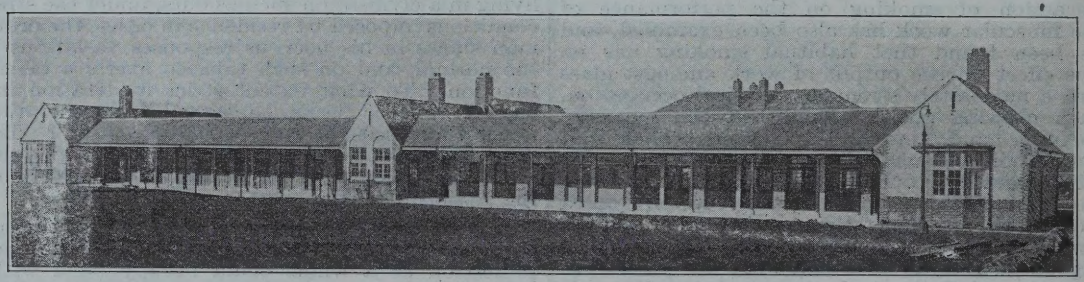
The administrative block contains rooms for the visiting doctor, matron, nurses, and servants, and the kitchen is equipped with electric and steam cooking ranges. Power is supplied from the power block, which contains boiler house, laundry, calorifier house, transformer, and disinfector rooms, garage and water-softener room. Behind it is a small mortuary with two post-mortem slabs. The sewage is purified on the premises and discharged into a neighbouring brook.

The entire hospital is surrounded with a belt of pine trees and an unclimbable fence. The buildings are all one-floored, of brick and Welsh slates, and the white enamelled walls of the wards are faced with plaster finished in Parian cement. The sanitary annexes and corridors have a white glazed-brick dado up to 4 ft. 6 in., with plaster finish above. The ward windows are of the metal "Austral" type. The duty rooms and wards are warmed with open fires, low-pressure heating system, and electric heating.

The estimated cost of the buildings is £81,000. The staff is to consist of a matron, 4 sisters, 14 nurses, 12 servants, a gardener, an engineer, and an ambulance driver. The three latter have cottages in the grounds.

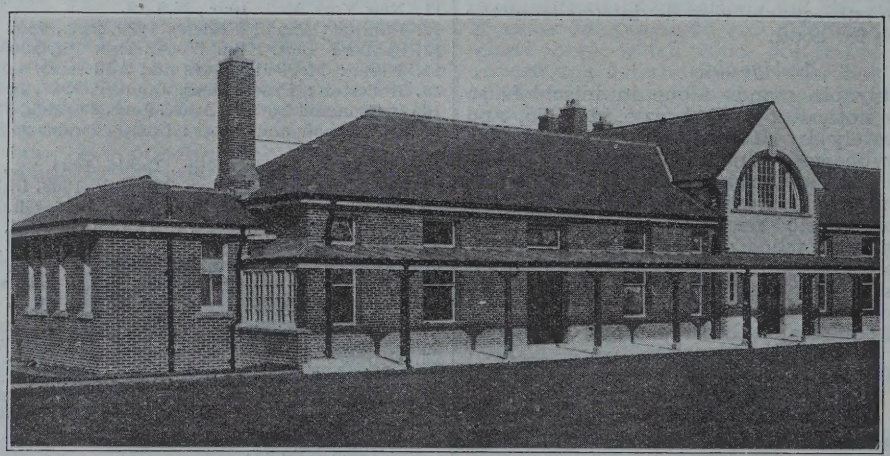
The Health Committee hope soon to add an X ray block.

FIG. 1.



New Hall Isolation Hospital, Southport. The Tuberculosis Pavilion.

FIG. 2.



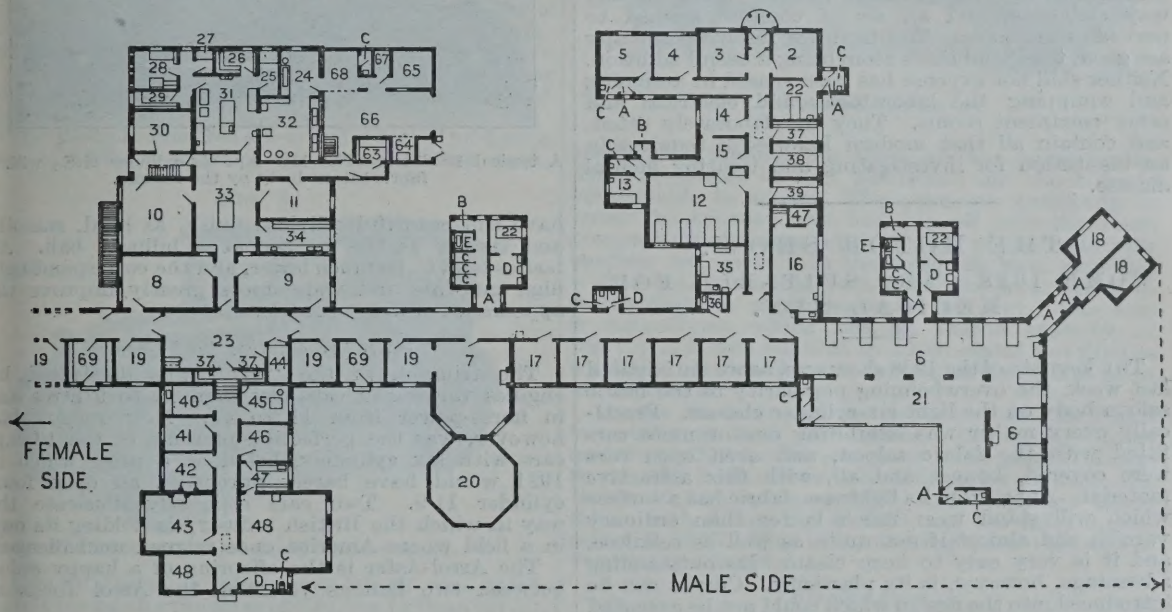
New Hall Isolation Hospital, Southport. Part of the Fever Block.

ST. ANDREW'S HOSPITAL FOR MENTAL DISEASES, NORTHAMPTON.

IN 1804 an anonymous donor presented to the governors of the Northampton Infirmary a sum of £100 "towards carrying on their design of making a provision for persons disordered in their mind." This was the beginning of the "Northampton General Lunatic Asylum," opened in 1838 for 52 pauper and 30 private patients. From 1876 only private patients were received, and the institution became known as the St. Andrew's Hospital for Mental Diseases, now the largest of the 13 registered hospitals of England.

The foundation-stone of a new reception hospital was laid on June 27th, 1924, and the completed building, accommodating 32 patients, was opened on Friday, Oct. 14th, by the Lord Chancellor. In a hospital for patients who have a reasonable prospect of recovery the reception department is, perhaps, the most important of all. In mental disorder the coöperation of the patient is even more essential than in physical disease, and first impressions of an institution may make all the difference between confidence and despair or negativism. In planning their new building the governors have aimed at providing every possible equipment for the treatment of early mental disorder, and at segregating noisy patients. At the opening ceremony Lord Cave expressed a hope that voluntary submission to treatment would soon be extended to county hospitals.

The block stands in its own gardens on a site sloping southwards, and has roughly the shape of the letter E, nearly two-thirds of which are shown in the figure. Along the vertical stroke of the "E" lie single rooms, for men and women, on either side respectively of the central horizontal. Near the middle block are day-rooms, cloak-rooms, and solaria. At each extremity of the vertical are dormitories each with 10 beds and large verandahs opening off them on to which beds can be wheeled. Jutting off from each dormitory is a single two-room suite, trebly isolated by sound-proof doors, where noisy patients can be treated. Bathrooms are provided both off the dormitory and off the corridor linking the single rooms. Each of the upper and lower horizontals of "E" contains admission and examination room, waiting and visitor's room, linen and store cupboards, a massage-room, and a large hydrotherapy hall. The latter contains three prolonged-immersion baths and an electrical bath, and the latest appliances for sprays, needle baths, massage douches, and lavage have been fitted, as well as a Turkish bath. A special room is devoted to various kinds of hot packs, and at the junction of each horizontal with the vertical limb of "E" is a large clinical room where the oculist and rhinologist can do their work, and where such investigations as fractional test-meals, blood examination, and the collection of samples can be carried out. In this room special treatments for focal sepsis are to be given.



Plan of ground floor of hospital. The female side is not shown as it is a replica of the male side. An upper story over the central block contains operating room, laboratories, and staff quarters. (1) Entrance; (2) admission and examination-room; (3) nurses' duty room; (4) waiting-room; (5) visitors' room; (6) dormitory; (7) day room; (8) female dining-room; (9) male dining-room; (10) nurses' mess-room; (11) orderlies' mess-room; (12) hydrotherapy; (13) Plombières; (14) massage; (15) dressing-room; (16) clinic and oculist; (17) single rooms; (18) detached single rooms; (19) sitting-rooms; (20) solarium; (21) verandah; (22) bath-room; (23) main hall; (24) vegetable scullery; (25) pantry; (26) kitchen pantry; (27) milk larder; (28) larder; (29) cooks' store; (30) servants' hall; (31) kitchen; (32) scullery; (33) servery; (34) glass and china; (35) ward kitchen; (36) pack-room; (37) store-room; (38) patients' clothes; (39) linen; (40) dispensary; (41) consulting-room; (42) doctor; (43) medical library; (44) bed lift; (45) dental room; (46) photography; (47) dark room; (48) X rays and electrical treatment; (63) boots and knives; (64) washing shed; (65) coal; (66) yard; (67) wood; (68) covered yard; (69) cloak room. (A) cut off lobby; (B) soiled linen; (C) W.C.; (D) lavatory; (E) housemaids' sink.

In the central horizontal of "E" are the dining-rooms, grouped around a servery which communicates with the kitchens, occupying the free end of the block. An extension of this line across the vertical—i.e., southwards, provides an administration block, with consulting-room for psychotherapy, medical library, and dental room. In this is a special X ray unit for photographing teeth, and a photographic and dark-room adjoin, so that every facility for modern dentistry is at hand. The main electrical departments lie just behind, and are equipped with the latest type of apparatus for diagnosis and treatment, including artificial sunlight, diathermy, and high-frequency installation.

The first floor only extends over the middle horizontal and a little way along the vertical on each side. In the latter part the nurses have their rooms, while the domestic staff are housed above the kitchens. The operating theatre, over the dining-rooms, is connected with the ground floor by a bed lift. Above the administrative block are the two laboratories, one for biochemical work, and the other for bacteriology and pathology. They are designed to work in close coöperation with the clinical rooms, where preliminary and simple investigations are to be carried out.

Specific researches also are to be made; the bacteriological side will begin with special cultural methods, and the biochemical side with the chemistry of the blood.

The whole of this hospital unit is for 32 patients, 16 of each sex. The single rooms in which they are accommodated are about 12 feet square, the feature of squareness giving a sense of increased size and being a pleasant change from the usual oblong shape. The doors of these rooms are all made wide enough for the bed to be wheeled out into the corridor, that the patient may be taken to the examination or treatment rooms, or outside, without getting up. The wards (or dormitories) at the ends of the corridors are broad and roomy, their south walls being formed of large glass folding doors, which give onto the wide verandah.

The furnishing and decoration of the building throughout is very pleasing without being in any way elaborate, and an air of comfort seemed to pervade the rooms. The facilities for hydrotherapy are good, the Plombière's room being a useful addition. Neither skill nor expense has been spared in designing and equipping the laboratories and electrical and other treatment rooms. They are elaborately fitted, and contain all that modern knowledge requires in an institution for investigating and treating mental disease.

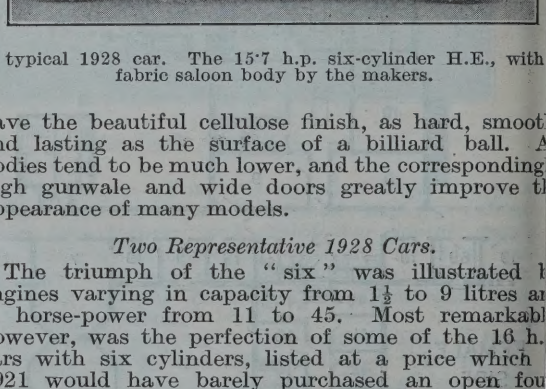
THE MOTOR SHOW.

SOME 1928 CARS SUITABLE FOR MEDICAL MEN.

THE keynote of the 1928 show was, as we anticipated last week, the overwhelming popularity of the fabric saloon body on the light six-cylinder chassis. Practically every maker was exhibiting one or more cars fitted with the fabric saloon, and even open cars were covered, bonnet and all, with this attractive material. Apart from its lightness, fabric has a surface which will stand wear much better than ordinary varnish and almost if not quite as well as cellulose, and it is very easy to keep clean. Its outstanding advantage, however, is its plasticity. Curves can be introduced into the design which could not be executed in a coachbuilt body. The typical fabric saloon at the show is dropped as low as the frame will allow, to give good headroom, with a roof that may not be above the eye-level of a tall man; the running board is also kept low and the wide twin doors, separated by the slenderest of pillars, open a bare six inches above it. A slight vertical as well as horizontal bulge in the sides gives the car the appearance of being adapted to its element like a ship or an aircraft, and the aftermost window on each side, difficult to insert with this type of construction, is replaced by a dummy folding-arm. At the back of the car, beneath the wide rear window, is a spare wheel on a neat bracket, a luggage-grid, and a trunk covered with the same fabric as the body. Some saloons have a roof which folds back like an ordinary hood—a device which for many will remove the last objection to a closed body. Many makers, especially of the lighter cars, fit the Kopalapso roof, made by a firm long famous for easily worked hoods, and the entire roof of the Tickford Sunshine Saloon winds off, on turning a handle, and folds back like an ordinary hood. The Pytchley Automobile Co. make a sliding roof which can be fitted on an existing body. It is generally admitted that the best fabric saloons are made by Gordon England in this country and Weymann in France.

Practically every car this year has a well-planned illuminated dashboard and cubby-hole, shelves or a parcel net, an air strangler for easy starting, and an automatic windscreen-wiper. Saloon windows are nearly all of plate glass with mechanical devices for opening and good blinds, and many cars have an adjustable visor to protect the driver from a setting sun or approaching headlights. Windscreens are now made in one piece, hinged at the top; the joint of the divided pattern hardly ever stood th test of a really stormy day. Other uniform feature are four-wheel brakes, shock absorbers, and sem balloon tyres; most cars have dipping headlight some have swivelling lamps and fog-lamps pointin to the curb, and practically all have some dimmin device. Most speedometers seem to be by Jaege The transparent number plate is coming into it own, and the few saloons not covered with fabr

FIG. 1.



A typical 1928 car. The 15·7 h.p. six-cylinder H.E., with fabric saloon body by the makers.

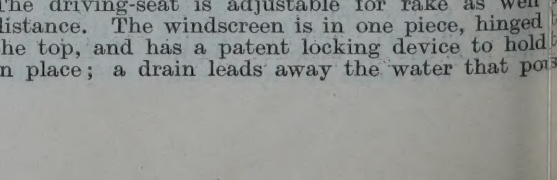
have the beautiful cellulose finish, as hard, smoot and lasting as the surface of a billiard ball. A bodies tend to be much lower, and the corresponding high gunwale and wide doors greatly improve th appearance of many models.

Two Representative 1928 Cars.

The triumph of the "six" was illustrated b engines varying in capacity from 1½ to 9 litres ar in horse-power from 11 to 45. Most remarkabl however, was the perfection of some of the 16 h. cars with six cylinders, listed at a price which 1921 would have barely purchased an open fou cylinder 11·9. Two cars especially illustrate th way in which the British industry is holding its ov in a field where America once reigned unchallenge

The Arrol-Aster is the offspring of a happy unio between two famous veterans, the Arrol Johnsto

FIG. 2.



14 h.p. Lea Francis, six-cylinder, with fixed head coupé bod

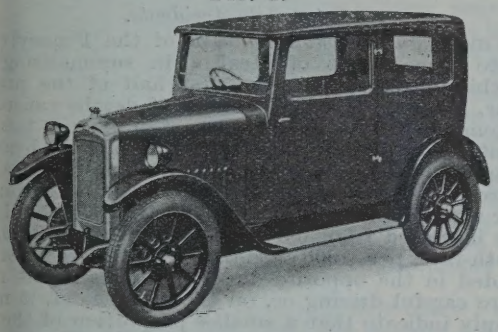
and the Aster Engineering Co. The 17/50 h.p. chas would be fair value at £700; actually it costs £4(or £495 with a three-seater body and £535 with fabric saloon. The first exceptional feature is t Enots "one-shot" chassis lubrication system, means of which one pump on the dashboard lubricat every bearing in the chassis through pipes. T springs, fitted with silent bloc shackles, need greasing. The driving position is good, although t gear and brake handles might with advantage be little closer in and the latter is slightly too n the body for the knuckles to have proper roo The driving-seat is adjustable for rake as well distance. The windscreen is in one piece, hinged the top, and has a patent locking device to hold in place; a drain leads away the water that pou

rom the lower edge during a storm, and none can nter the car. The windows of the saloon body spring p by themselves, and the blind over the rear window controllable from the driver's seat. The tubular ross-member of the frame is hollow, and exhaust ases are led through it to heat the body in winter. our brakes are worked simultaneously by the ot, and two other independent brakes by hand. he engine has single-sleeve valves and a four-speed ear-box is fitted with right-hand change. Altogether is car is a splendid achievement. These makers, parately and collectively. also manufacture a h.p. four-cylinder and two other six-cylinder chassis.

The Brocklebank 15 h.p. six-cylinder chassis is mewhat smaller. The fabric saloon body, by the akers, is fitted with single seats for the driver and s companion, and the upholstery is of real leather ith pneumatic padding. The equipment is lavish nd the coachbuilt saloon has one of the best cellulose nishes in the show. No medical man should buy a r of this class without inspecting the Brocklebank. his is the only chassis made by this firm, who believe concentrating on one design. With a two-seater dy the car costs £385, and with a Gordon England bric saloon £398.

Other medium-powered six-cylinder cars of moderate ice, in addition to those we mentioned last week,

FIG. 3.



The Triumph "Super Seven" fabric saloon.

the 16 Austin, a new-comer wh ch was unfortately too late for the show (£355), the 18 Bean (£475), 15 Hampton (£425), the 16 Rover (£410), the Standard (£330), the 18 Star (£450), the 18 Surrey 25), the 14 Talbot (£395), the 14 Vulcan (£375), 16 Waverley (£450), and the 16 Wolseley (£450). price quoted is for the five-seater touring model each case, but the doctor who prefers a coupé obtain it on these or practically any other chassis usually, a slightly higher price. Morris Motors sell a light six saloon at £350.

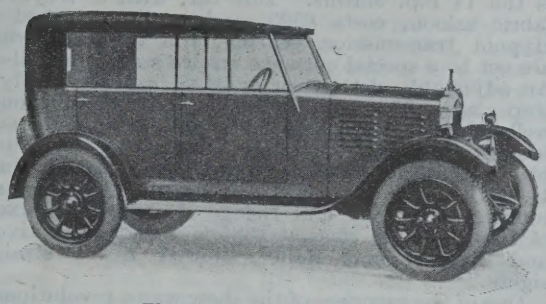
We referred last week to the excellence of the Vauxhall, of which two models are shown at £475 £495, and of the Armstrong-Siddeley, whose price markably low at £400.

Cheap Cars.

The Trojan at £125 has become a national institu-, and the saloon model at £170 is very handsome ed, though the back seats might with advantage leeper and have a greater tilt. The top is detach-. The Jowett four-seater (£145) and saloon (£170) e more leg-room than ever, and it is actually ible for a six-foot man to stretch his legs in the of one of these cars without sitting crosswise. firm were also showing a most attractive sports el at £145. The "baby" Austin is now sold at 5 and is for the first time faced with a rival, the mph Super Seven (Fig. 3), which costs £149 10*s.* four-seater, £167 10*s.* as a two-seater de luxe, £187 10*s.* and £192 10*s.* with fabric and coach- saloons respectively. The back has, if not le, at any rate reasonable room; the finish and olstery are of big-car standard, and the makers n a 55 m.p.h. maximum. Moreover, the design pes that infantile appearance which the makers nall cars find it so difficult to avoid.

The 9 h.p. Standard at £190 with a two- or four-seater body (Fig. 4), and £215 with a fabric saloon, is a decided acquisition to the small-car class. The most prominent features of this car are its big radiator and the horizontal louvres in the bonnet sides. The top of the windscreen is a little low in the closed model and the central gear lever does not come to hand as

FIG. 4.



The Standard Touring Car.

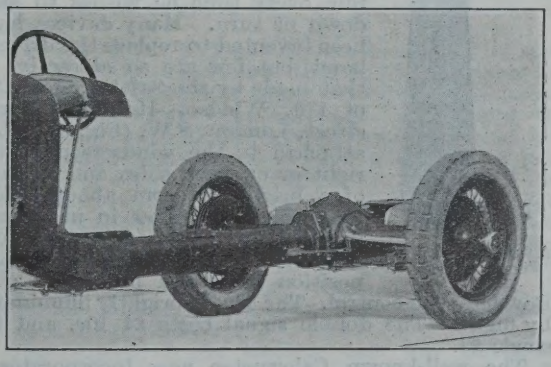
easily as it should, but these are the worst faults. The appearance is very handsome and the body is comfortable to sit in. The passenger preparing to enter the tonneau and fold himself into the small compass usually demanded by such places finds with surprise and relief that the designers have provided a deep pit, extending well under the front seats, in which there is ample room for his feet. The new 9 h.p. Clyno, which has an engine capacity of 950 c.cm., is sold for £145 as a four-seater and £160 as a saloon. It has the new pattern radiator and is an attractive car.

On the borderline of the cheap cars are the Fiat 9 two-seater at £195, the Humber 9/20 two- or four-seater at £250 (a first-class car with plenty of leg-room), the Swift 10 two- or four-seater at £220, the Rover 10 two-seater at £220, and Weymann fabric saloon with sliding top at £250, and the Riley 9 two-seater at £235. This is mentioning a few only out of very many examples.

Foreign Cars.

Study of the catalogue reveals the fact that our industry is now competing effectively with the American and matching it at nearly every point.

FIG. 5.



The new and unorthodox Austro-Daimler chassis.

The Trojan is holding its own, in this country at any rate, with even the redoubtable Ford. Last year the Erskine, a splendid little car, stood quite alone; this year it has more than one British competitor at its chassis price of £230. The new Dodge six-cylinder 25·6 h.p. chassis at £395, or £565 with a saloon or five-seater body, is a new departure for this firm, and the Commander, a Studebaker monster of nearly six litres capacity, or 36 h.p. by our rating,

comes to contest the field with Bentley, Rolls, and Lanchester. It must be admitted that no British saloon of this size is obtainable for £565. The Franklin air-cooled six with its ash frame is still unique, and the Peerless and Velie sixes and the Stearns-Knight and Little Marmon "straight eights" are new to the British market. Size for size, we are increasing our price advantage over the continental manufacturers, but a conspicuous rival in the light six-cylinder class is the 14 h.p. Mathis. This car, with a Weymann fabric saloon, costs £395, and is distinguished by Hypoid transmission gearing, the teeth of which are cut to a special curve to ensure a smooth pull-off. An adjustable cloth visor is fitted inside the body to stop glare. The 10 h.p. Mathis has a conspicuously well-finished Weymann body for £275. Renault, besides the little Monasix, were showing a huge black 45 fabric saloon that they had made to Major H. O. Segrave's order for very fast long-distance touring. Peugeot and Delage also showed "sixes" of 16 h.p. saloon class at £385 and £625 respectively, and Bugatti and Ballot showed new "straight eights."

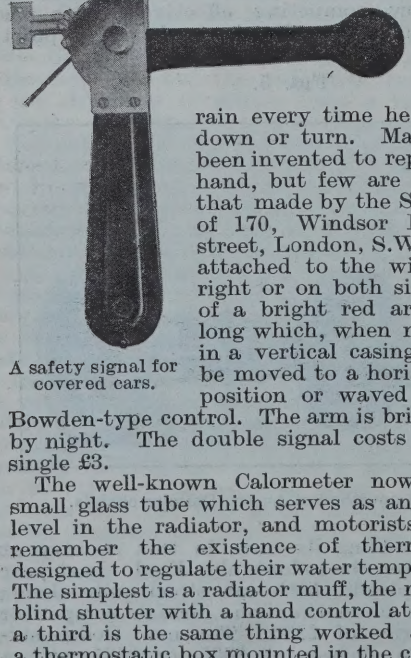
One of the surprises of the show was a revolutionary chassis on the Austro-Daimler stand called the ADR 22/70 (Fig. 5); from the radiator to the scuttle it is orthodox, but at that point the frame sweeps inwards to meet the unit gear-box, and continues back to the rear axle as a large solid tube encasing the transmission shaft. The live-axle casings are hinged and the rear springs are underneath them. The body is supported at the level of the gear-box and at three points on the tube, once by a stay passing right through this member. The advantages claimed are the saving of 3 cwt., the independent movement of the back wheels, which eliminates skidding and gives better adhesion; exceptionally good springing, a low centre of gravity, and the avoidance of torsional stresses in the body.

There were no new types of large car calling for special notice, but many well-known and excellent makes were fully represented.

Accessories.

Opponents of the saloon body have one argument that cannot be answered, that if the driver is to be protected from weather he cannot signal with his hand. Moreover, no one wants to put an arm out into pouring rain every time he wishes to slow down or turn. Many devices have been invented to replace the driver's hand, but few are so attractive as that made by the Safety Signal Co., of 170, Windsor House, Victoria-street, London, S.W. (Fig. 6). It is attached to the windscreen at the right or on both sides and consists of a bright red arm about a foot long which, when not in use, hangs in a vertical casing and which can be moved to a horizontal or upright position or waved by means of a Bowden-type control. The arm is brightly illuminated by night. The double signal costs £4 10*s.* and the single £3.

FIG. 6.



A safety signal for covered cars.

The well-known Calormeter now incorporates a small glass tube which serves as an indicator of the level in the radiator, and motorists will do well to remember the existence of thermostatic devices designed to regulate their water temperature in winter. The simplest is a radiator muff, the next is a venetian blind shutter with a hand control at the driving seat, a third is the same thing worked automatically by a thermostatic box mounted in the circulatory system (Smith and Sons), and the most elaborate of all is a thermostat that actually controls the flow of water.

A dual windscreen-wiper, clearing two contiguous areas, is an improvement on the single type; in this sold by S. Smith and Sons at £2 5*s.* the two arms are worked from one driving box.

Jacking is facilitated by the provision of the Enots hydraulic jack (45*s.*) of a long handle by which the operator can raise the head to the required height under the axle without circling; also by the Salisbury Jack Guide, a runner fitted under each spring and parallel to it. The jack head, of a special design, is linked on to the runner and pushed along it with the jack handle until it reaches the desired position.

All the well-known makers of sparking plugs exhibited, and Lodges especially catered for particular types of engines, with their HD model for Daimler, TB for Buicks, AF for Fords at 6*s.* 6*d.*, 5*s.*, and 4*s.* respectively. Dunlops held their own against a real inrush of foreign competitors with their "Buttress" Triple Stud" balloon and medium pressure tyres.

The show was a striking revelation of the enterprise and creative genius of motor-car manufacturers in general and of British makers in particular.

UNITED STATES OF AMERICA.

(FROM AN OCCASIONAL CORRESPONDENT.)

Automobile Accidents.

THE *Vital Statistics Bulletin* of the Pennsylvania State Department of Health, in summarising the morbidity returns for the first half of the present year, remarks that the number of deaths caused by automobiles continues to rise steadily. A table is printed, however, to show that "despite the headline characteristics associated with automobile fatalities there is an encouraging element in the background. For whereas the mortality-rate per 100,000 population has increased from 0·3 in 1906 to 18·4 in 1926, the death-rate per 1000 registered motor vehicles has tended in the opposite direction. This might mean more careful driving or, on the other hand, it might simply indicate that a smaller proportion of the cars are kept on the road than formerly. The present record of one person killed each year for every 150 vehicles registered is shocking enough.

A Public Health Congress.

About 160 speakers have agreed to address the fifty-sixth annual meeting of the American Public Health Association to be held at Cincinnati from Oct. 17th to 21st. Dr. Charles V. Chapin, the President, will speak on Science and Public Health. A discussion on the highly controversial subject "Has Prohibition Promoted Public Health?," will be opened by Prof. C.-E. A. Winslow, of Yale University, and continued by Dr. Louis I. Dublin, statistician of the Metropolitan Life Insurance Company, Dr. Haven Emerson, of Columbia University, and Dr. Matthias Nicoll, jun. The Health Commissioner of the State of New York, Dr. Paul F. Orr, is to give an Epidemiological Study of Malta Fever in Michigan. Among other distinguished speakers is Dr. Pierre Boudreau, of the Health Section of the League of Nations, and the meeting promises to be of unusual interest.

New Psychiatric Institute for New York.

Governor Smith, to whose official backing is largely due the successful financing of the new Psychiatric Institute, laid the foundation-stone on Sept. 19. There will be 20 stories, of which the lower ten will be occupied by a hospital in connexion with the Institute. Here students of the College of Physicians and Surgeons will have an opportunity to study the early symptoms and treatment of mental disease. The upper stories will be largely devoted to research, there will, however, be accommodation in the Institute proper for cases of special scientific interest. Courses of instruction will be offered to physicians, social teachers, social workers, and welfare officers.

Correspondence.

"Audi alteram partem."

THE USE AND MISUSE OF DENTAL SKIAGRAMS.

To the Editor of THE LANCET.

SIR,—Permit me to draw your attention to a practice which appears to be growing and is, I venture to think, prejudicial to all concerned. It is this. A doctor, thinking that the condition of his patient's teeth may have a bearing on his illness, sends him to a radiographer of his own choosing. On the strength of his own or the radiographer's interpretation of the resulting radiograph, often not too clear, he makes a diagnosis, possibly prescribes treatment, and either requires the patient's own dentist to carry it out or very frequently sends him to someone else of his own selection. Surely this is wrong.

Dental radiograms are a very valuable aid to diagnosis, but only an aid, and no substitute for clinical examination. They are often invaluable in revealing unsuspected trouble, more often still in affording ocular and convincing proof of what the dentist already knows or suspects; but, on the other hand, there may be serious sepsis without there being any signs of it in the radiogram; their negative evidence cannot be relied upon. Moreover, to be of value they must be really good, and to produce good dental films requires considerable practice. With certain brilliant exceptions the dentist who takes his own usually attains to a higher level of perfection than the general radiographer. Far too many reports are made upon skiagrams so imperfect that no safe deductions can be drawn from them. Having obtained good films they must be correctly interpreted, often no easy matter, and here again the dentist is more likely to be successful than the medical man or the radiologist in whose report the doctor usually puts implicit faith.

As examples of the gross errors easily made I may mention a case where a patient was recently told by a doctor that an upper wisdom tooth was diseased and must come out, the "tooth" in question being the coronoid process of the mandible; and the frequent condemnation of lower premolars as the subject of chronic sepsis, by reason of the proximity of the inferior dental foramen to their roots. It is obviously unwise to depend upon the shadow for diagnosis and entirely ignore the substance. No dentist would rely solely upon radiograms apart from clinical examination and the clinical history. Were he limited to one or the other he would certainly choose a careful clinical examination. It is not uncommon for a patient to come to a dentist with films taken at the request of his doctor and instructions that certain teeth are septic and to be removed, while others much worse are passed unnoticed. It is not only unprofessional and discourteous to ignore the patient's own dentist, but shortsighted; because, if a careful man, he will have a recorded history of the mouth which may prove of the utmost value.

The reasons why he is so often ignored by the doctor when a diagnosis is to be made would appear to be that the doctor mistrusts dentists in general (or, possibly with good reason, that one in particular) while he overrates skiagrams as a source of accurate and complete information, and fails to realise that their interpretation is a matter where the knowledge and experience of the dentist and his clinical findings are of the utmost value, with the assistance of the radiogram in case of difficulty. Surely the correct course is to refer the patient in the first instance to his own dentist, if he has one, for a report, with skiagrams, on the condition of the mouth. If, for any reason, this report should not inspire confidence, a second opinion should be sought. In this way the patient's interests would be served and no one would have cause to complain. The facts are that the average doctor has very little knowledge of teeth, and the average dentist has very little knowledge of general pathology, so that only by their close coöperation can the patient derive the maximum benefit.

I am, Sir, yours faithfully,

Harley-street, W., Oct. 12th, 1927. J. H. BADCOCK.

PARAPLEGIA IN HODGKIN'S DISEASE.

To the Editor of THE LANCET.

SIR,—In connexion with the three articles in THE LANCET of Oct. 15th (pp. 806–810), perhaps I may be permitted to draw attention to a case of Hodgkin's Disease with Paraplegia, by Dr. J. Carslaw and Dr. J. S. Young, in the current number of the *Glasgow Medical Journal* (1927, cviii., 193). In their case there was a diffuse growth of fibrocellular tissue, comprising a small proportion of large cells with irregular, hyperchromatic nuclei, in the extradural space of the dorsal region.

As far as I know no involvement of the extradural space has yet been noted in cases of Hodgkin's disease in which during life there has been herpes zoster, but perhaps this is because in such cases the vertebral canal has not been examined at post-mortem examinations. Personally, I used to think that the occurrence of herpes zoster in cases of Hodgkin's disease was due to arsenical treatment, but it may well be that in some cases it has been a result of involvement of the posterior roots (with their ganglia) of spinal nerves in the lymphogranulomatous process. Incidentally I note that these authors speak of "Hodgkin's sarcoma" after J. Ewing. Surely, the term "Hodgkin sarcoma" would be better, as Hodgkin certainly did not distinguish a Hodgkin sarcoma from a Hodgkin granuloma, though now both may well be named after him (in his honour).

I am, Sir, yours faithfully,

London, W. 1, Oct. 15th, 1927. F. PARKES WEBER.

SUBSTITUTES FOR WINDOW GLASS.

To the Editor of THE LANCET.

SIR,—I have read with great interest the comment in THE LANCET of August 6th, p. 316, on the report of the Council on Physical Therapy of the American Medical Association on various materials advertised as pervious to ultra-violet rays. Your coöperation and support as evidenced by the publicity given this report and previous reports of the Council in your valued journal is deeply appreciated. Such coöperation and support of the Council in its great task will materially hasten the day when physical therapy will be on as sound a basis as pharmacotherapy is to-day.

In view of the undoubtedly good influence of such publicity it is unfortunate that in the comment on the report on window glass substitutes the writer should apparently not thoroughly understand the purposes of some of the experimental work that was done by the Council. In the last paragraph of your article it is stated that in view of the well-established fact that it is the shortest ultra-violet rays of sunlight that make heliotherapy valuable in the prophylaxis and cure of rickets, it seems hardly necessary to have tested the value of these glass substitutes biologically. The object of the biologic test performed on the materials under consideration has been apparently understood imperfectly.

The object of the biologic test was threefold: (1) to determine whether sufficient ultra-violet energy is present in winter sunshine in urban centres to warrant the use of materials of this sort for glazing windows; (2) to determine the relative value of the materials tested as transmitters of the anti-rachitic rays of the sun; and (3) to determine the antirachitic effect of winter sunlight filtered through these materials as compared with that of ultra-violet light from an artificial source.

I am, Sir, yours faithfully,

H. J. HOLMQUEST,

Chicago, Oct. 6th. Secretary, Council on Physical Therapy.

THE POSITION OF MEMBERS OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND

To the Editor of THE LANCET.

SIR,—The Council of the Royal College of Surgeons of England has just published the result of the poll of the Fellows of the College on the question of the admission of Members to some representation on the Council. The voting paper was sent to 1850 Fellows; 846 voted No, 234 voted Yes; 770 Fellows did not vote. Unfortunately, and unfairly, I contend, the Council issued with the voting paper a definitely biased and *ex parte* statement of the Members' case.

It is remarkable that 770 Fellows did not vote. Also it should be noted that there are about 600 Fellows in the metropolitan area.

I am, Sir, yours faithfully,
REDMOND ROCHE.

Eccleston-square, S.W., Oct. 16th, 1927.

HOSPITALS AND MOTOR-CAR ACCIDENTS.

To the Editor of THE LANCET.

SIR,—May I trespass upon your columns to ask the secretaries of hospitals throughout the country who can provide statistics as to the number of motor-car accident cases treated (with, if obtainable, the average length of stay) to send them to me, if possible, by the end of the present month. I am endeavouring to obtain statistical proof of the circumstances which have been alluded to so frequently in your columns of late.—I am, Sir, yours faithfully,

H. W. BURLEIGH,
Secretary and General Superintendent.

Hospital for Epilepsy and Paralysis, Maida Vale, W.,
Oct. 17th, 1927.

MISLEADING QUALIFICATIONS.

To the Editor of THE LANCET.

SIR,—By an old-standing convention (adopted by makers of dictionaries and works of reference) Fellowship of the Royal College of Surgeons of England is denoted by the letters F.R.C.S., and Fellowship of the Royal College of Physicians of London by the letters F.R.C.P. Fellowship of other colleges, according to the same custom or convention, should be indicated by the addition of letters distinctive of the college to which the Fellow belongs. Those who do not conform to this convention are therefore liable to be judged ignorant if not, indeed, anxious to appear other than what they are.

But there is no existent convention by virtue of which any one who appends M.D. to his name is to be supposed doctor of medicine of any particular university. M.D. means doctor of medicine; F.R.C.S. means Fellow of the Royal College of Surgeons of England. I am, Sir, yours faithfully,

Oct. 14th, 1927. F.R.C.P.

*** More authority is needed for the closing "ipse dixit."—ED. L.

PAYMENT TO HOSPITALS FOR MOTOR ACCIDENTS.—Motor accidents are causing a serious increase of the waiting list at the Norfolk and Norwich Hospital, besides heavy expenditure. Motor insurance companies, it is stated, have resisted liability for payment of the hospital costs of such accidents on the ground that hospitals are voluntary institutions, and are therefore unable to sustain a claim. A report shows that in the first week of September there were 35 cases of injury in motor accidents in the hospital, and that their length of stay was considerably above the average. At a meeting of the hospital authorities on Oct. 8th it was pointed out that a private practitioner to whose surgery a motoring victim was taken could send his bill to the insurance company, and that the hospital could put itself in the same position as a private practitioner by sending all its motor cases to the new paying ward which would be opened early in the new year.

Obituary.

MAJ.-GEN. SIR WILLIAM GRANT MACPHERSO K.C.M.G., C.B., LATE A.M.S.

WE regret to announce the death of Sir Will Macpherson, the editor-in-chief of the official "Med History of the War," and a familiar person to med men as a great soldier-doctor. He died on Satur last at his house in Evelyn Gardens, Kensington the age of 69.

Macpherson was the son of the Rev. W. Macpher of Kilmuir Easter, Ross-shire, where he was b in 1858. He was educated at Fettes College, b one of the original band with whom that school opened in 1870. He proceeded to the University Edinburgh, where he graduated in the first insta in high classical honours, being university scholar in Greek, but later he turned to medicine, and in 1882 graduated M.B., C.M. Edin. After taking out post-graduate courses at the Universities of Leipzig and Tübingen, he entered the Royal Army Medical Corps with credentials of an unusually high order, so that his success was immediately predicted and opportunities for special service c readily to his hand. In 1892 he was in medical ch of Sir Euan Smith's mission to Fez, and he filled same position in Sir Arthur Nicolson's missio Morocco City. In such capacities he made a mar himself alike as a doctor and as a man of the world previous to the outbreak of the European Wa career formed a series of special duties in South A Panama, and Cuba, while in 1904, having rece the C.M.G., he was appointed senior medical o to the North China Command. This post he permitted to select for himself in response flattering suggestion that he should go wher could be most useful. He chose the China app ment because it would bring him near the scen the impending struggle between Russia and Ja with the result that he was attached during the R Japanese War to the Japanese Army in the saw a great variety of service, while his pers work was recognised by two Japanese decorat The experience gained in these several ways o sides of medical organisation was used by immediately afterwards in Geneva, where he was of the British plenipotentiaries at a conferenc the revision of the Geneva Convention, and in and for the next four years, he was attached t general staff A.M.S. In 1910 he was appo P.M.O. at Malta, and after holding this positio one year he was transferred for three years t

SIR WILLIAM MACPHERSON.

taff College at Quetta, an appointment which he as holding previous to the outbreak of the European ar.

The beginning of hostilities found him in high osition at the War Office, and it became his duty to operate with Sir Alfred Keogh in improvising mediately the medical activities of our Army, and is on an unparalleled scale of magnitude as the mbers of the troops grew with bewildering rapidity d the areas of fighting were multiplied. The ficial history of the war, for which Macpherson terwards became responsible as editor-in-chief, ows how wide and various was his own personal are in the many and critical circumstances where e prompt availability of medical measures formed essential feature in the conduct of the war. As rector of Medical Services in the First Army, as eputy Director-General, and later as Director of edical Services to the British Forces in Macedonia, acquitted himself with the highest distinction, ing mentioned in dispatches nine times and receiving e C.B. in 1915 and the K.C.M.G. in 1918. But he ll be remembered especially for his fine accomplishent in compiling and freely contributing to the Medical History of the Great War," and organising issue in an authoritative and convenient form. liberately limited, under Treasury conditions, to volumes, this history forms a record, as far as ssible in narrative form, of the chief features in medical services of the United Kingdom, in risons overseas, and with the Expeditionary rces in the various theatres of war during the years 4–18, and in subsequent periods when connected idents occurred of historic interest or importance. r readers know the care exercised by the editorchief and his collaborators both in the selection material and the proportionate space of the various pters, for the work, as it appeared, has been freely iewed in these columns. It is sufficient to say that object of the History, as stated in Macpherson's eral preface, was well carried out within the essary limitations; a consecutive medical story the war was presented in an accessible form, for ch the obvious sources of information have been wn upon, while much material buried in masses war diaries, administrative files, and official uments has been included, verified, and collated, that its significance emerges in relation to the eral narrative.

he time and leisure which Macpherson obtained retirement from the Army, when not taken up his official literary labours, were amply filled with lic work. He rendered active assistance to the ish Medical Association, being for five years a esentative on the Council of the R.A.M.C., for years a member of the Naval and Military Comee, a member of the Committee on the Expansion he Royal Army Medical Services in cases of onal emergency (1921–23), of the Committee on Royal Commission on the Superior Civil Service India (1924–26), and chairman of the Special mittee on Tests for Drunkenness. Further, to editorial work of the *British Medical Journal* he ered valuable help as a writer and reviewer. his pen was as skilled as his knowledge wide, and THE LANCET was also on many sions indebted to Macpherson for help and ce.

rsonally, Macpherson was a striking example of arming man, to use a hard-worked epithet, while slightest acquaintance with him revealed that ttractive manner was the least of his gifts. His learning and his hard experiences had left him ordinarily modest, but his capacity was there e used when needed. Always courteous and pathetic, he endeared himself to a large circle iends outside official and professional relations; as a genial host and a versatile athlete. As an rgraduate he had been a distinguished boxer gymnast; he played polo and hunted and raced e various stations to which responsible duties l him, and later in life he became a keen golfer. In this connexion his gratification was great when the R.A.M.C. won the Army Championship Cup at St. Andrews last year. A series of honours fell to him in the natural course of events in addition to those we have already mentioned. He was a Companion of the Legion of Honour and of the Crown of Italy, received the Distinguished Service Medal of the U.S.A., and the University of Edinburgh made him an LL.D. in recognition alike of his distinction as a scholar and of his national work.

Macpherson was married first to Miss E. A. Clunas, daughter of Mr. J. Clunas, of New Orleans, who died in 1907, and three years later he married Miss G. E. Doran, daughter of General Sir John Doran.

WILLIAM CAMERON MACAULAY, M.B. LOND.

Dr. Cameron Macaulay was the second son of Bryce Johnston Macaulay, headmaster of Wishaw Public School, Lanarkshire, and was born in 1869. Educated at Wilson Grammar School, Camberwell, he was obliged by straitened family circumstances to begin earning his livelihood at the early age of 17. He became a teacher, held various masterships, and in 1895 he graduated as Bachelor of Arts in the University of London with honours in English. For another three years he remained in the teaching profession, being an assistant master at the Westminster City School and tutor in early and mediæval English for the examinations of the University of London. But in 1898, at the age of 30, he entered the Middlesex Hospital as first entrance scholar, and began a brilliant career as medical student. He secured almost every scholarship and prize; thus in one year, 1904, he won the John Murray gold medal and scholarship, the second Broderip scholarship, the Governor's prize, the Leopold Hudson prize, and the Hetley Clinical prize. In the intervals of strenuous medical study he found time to continue teaching in English, and for several years also he held the post of demonstrator of chemistry at the Hospital Medical School. In 1903 he graduated as M.B. Lond., and after holding the resident obstetric appointment at the Middlesex settled down in practice at Brixton, where he worked until within a month of his death, save for the period of the war. An ardent Territorial, he was second in command of the 2/5th London Field Ambulance from its formation to its disbandment. He saw active service in France, Salonika, Macedonia, Egypt, Palestine, and Syria, and was mentioned in dispatches by General Allenby for gallant and distinguished services in the field.

Mr. G. Gordon-Taylor, to whom we are indebted for these biographical details, writes as follows of Dr. Macaulay's work as a practitioner: "Circumstances prevented him from taking up consulting work, and his brilliant academic career was therefore not crowned by a staff appointment, but he faithfully, ably, and assiduously served his patients in the south of London. He had a dignified and impressive appearance, and although the Latin word *gravitas* is perhaps most descriptive of him, to use the words of the younger Pliny it might well be said of Cameron Macaulay: *Et dignitate personæ et exempli raritate et iudicii magnitudine insignis.*"

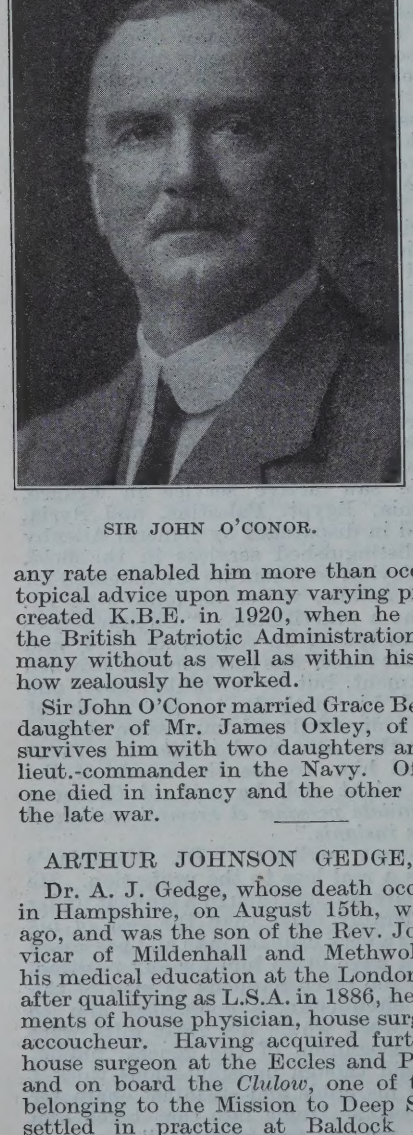
Mr. Victor Bonney writes: "Dr. Macaulay's premature death is a real loss to the profession. He entered his calling late, so that though a student under me, he was considerably older than the rest of his classmates. He was a very brilliant man and possessed ability which would have fitted him for any position, however high. As too often happens to men of the greatest promise, circumstances compelled him to take up a line of work where his great gifts were hidden from the recognition of the general public. That he did splendid though unostentatious work I can vouch for, and his noble and steadfast character enabled him to meet the tragic fate that befell him with extraordinary courage and fortitude."

Dr. Macaulay's final illness was treated at his old hospital where he was surrounded and looked after by his old friends and class-fellows, commanding the

admiration and respect of all who worked to try to save him. He is survived by a widow and one son, Dr. H. M. Cameron Macaulay, who is deputy county medical officer of health for Middlesex.

SIR JOHN O'CONOR, K.B.E., M.D., B.CH. DUB.

John O'Cônor was born at Carrick-on-Shannon in 1863, the son of Mr. Abraham O'Conor of that place, and received his medical education at Armagh and Trinity College, Dublin, where he was a member of the Fifteen and stroke of the Eight. He graduated in medicine in 1886, proceeding to the doctorate in 1890, and was for three years resident surgeon at the Royal Hospital, Portsmouth, but in 1890 proceeded to Buenos Aires, having been appointed one of the resident medical officers at the British Hospital. Four years later he became senior medical officer, and from that institution have emanated the many communications on surgery, dietetics, and hospital administration which he made to the medical press. These communications were largely in the form of letters, in which particular points were taken up or brief summaries were given of personal experience along certain ranges of diagnosis and treatment, although longer articles were occasionally published from his pen, such as a recent one in our columns upon cholelithiasis. Much of his writing was of practical value, and if his communications suffered in one respect from the desultory nature of their appearance, this method at any rate enabled him more than occasionally to give topical advice upon many varying problems. He was created K.B.E. in 1920, when he was chairman of the British Patriotic Administration Committee, and many without as well as within his profession know how zealously he worked.



SIR JOHN O'CONOR.

Sir John O'Conor married Grace Beatrice Richmond, daughter of Mr. James Oxley, of Frome, and she survives him with two daughters and a son who is a lieut.-commander in the Navy. Of two other sons, one died in infancy and the other on service during the late war.

ARTHUR JOHNSON GEDGE, M.R.C.S. ENG.

Dr. A. J. Gedge, whose death occurred at Havant, in Hampshire, on August 15th, was born 63 years ago, and was the son of the Rev. John Denny Gedge, vicar of Mildenhall and Methwold. He received his medical education at the London Hospital, where, after qualifying as L.S.A. in 1886, he held the appointments of house physician, house surgeon, and resident accoucheur. Having acquired further experience as house surgeon at the Eccles and Patricroft Hospital and on board the *Clulow*, one of the hospital ships belonging to the Mission to Deep Sea Fishermen, he settled in practice at Baldock in Hertfordshire, but 24 years ago moved to Havant, where the remainder of his life was to be spent. Dr. Gedge strongly advocated abstention from alcohol and was medical officer to the local Tent of Rechabites. He was a faithful churchman; a number of his patients and friends are arranging to place a window to his memory in the Parish Church, Havant. He will be much missed in local archæological circles for his sound antiquarian knowledge, which was always at the service of the Hayling Island Field Club. It was largely due to his private representations and to an appeal which he drafted that Portchester Castle was scheduled as an historic monument and saved from further dilapidation, and he was keenly interested in the excavation of the newly discovered Roman villa on Holt Down, between Horndean and Peters field.

"It has been one of the greatest privileges of my life," writes a medical colleague, "to know Arthu Johnson Gedge for 20 years. During that period never heard him say an unkind word of anybody His tastes were numerous. Archæology, antiques folklore, and country life being perhaps the principa things in which he interested himself apart from h professional reading, which had been wide and varied His keen sense of professional honour was such tha all his colleagues trusted him perfectly. He wa consistently cheerful during a lifetime of man difficulties (never referred to by himself); his patient loved and trusted him absolutely, and he has le behind him a fragrant and beautiful memory."

Dr. Gedge left a widow, two sons and one daughte

Medical News.

UNIVERSITY OF CAMBRIDGE.—At a Congregatio held on Oct. 15th the following degrees were conferred:

M.D.—J. C. N. Harris (by proxy) and L. P. Lockhart.
M.B. and B.Chir.—H. J. Burrows, N. H. R. Hatfield, G. Chandler, and M. S. Dewhurst.
M.B.—A. C. Copley.

At recent examinations the following candidates w successful:—

Diplomas in Public Health and in Hygiene.—Part II.: L. A. Anderson, H. M. Ayres, Albert Gilbert, H. M. Osm M. H. M. Ragab, K. N. Segal, George Shehata, H. Sin Mary Y. M. Stevenson, and H. C. Wilkinson.

UNIVERSITY OF GLASGOW.—The following degr were conferred on Oct. 17th:—

D.Sc.—John Glaister, M.D.
M.D.—With honours: Amy M. Fleming and Georg Murdoch. *Ordinary Degree:* A. M. Scott.
M.B., Ch.B.—With Honours: W. A. Mackey, Margaret Thomas, W. S. Hodghton, A. K. Hill, and J. M'K. Brews *With Commendation:* A. W. Fraser, Matthew Bowm Margaret G. Crockett, G. H. Gibson, L. J. Lang, Rol M'Whirter, W. B. Kyles, John Fleming, Thomas Johnsto S. A. Maclean, H. P. Goldman, and L. L. Hurw *Ordinary Degree:* F. V. Adams, James Agnew, R. W. Agn Frances W. Anderson, W. W. Ballardie, Hugh Bankhe John Baxter, George Bryden, R. MacN. Buchanan, J. S Burnett, J. B. Cadas, J. M. Clow, Thomas Craig, Isabella Currie, John Darling, H. M. Davie, I. M'C. C. Dewar, J. Drummond, J. E. Dunn, L. C. Durie, C. A. Ferguson, H Ferguson, J. B. Fulton, R. D. Gilchrist, J. M'M. Gils J. S. Graham, J. C. Gunn, Thomas Hamilton, Da Hannah, Alexander Hart, J. A. Houston, William Hun Philip Jacobs, Robert Jamieson, R. S. Kennedy, W. M Ker, G. K. Kirkland, William Kirkwood, Annie La Malur Lakshmiamma, J. H. B. Livingston, Alexa M'Crorie, Allan Macdonald, James MacDonald, Will MacDonald, C. M. M'Intyre, Charles M'Kay, J. L. M'N H. D. Manderson, A. C. Morrison, Margaret Mulv Jessie W. Ogilvie, R. A. S. Peacock, Elizabeth Pollock, T. A. Pratt, A. R. Reid, J. B. Rennie, Da Robertson, J. K. Roger, B. B. Rosenheim, W. F. Se A. R. Shaw, James Simpson, H. S. Strachan, W. B. Sut land, George Swanson, Jean W. Symington, Annie Thompson, T. H. S. Tizzard, Matthew Tytler, Isabell Wiese, W. H. Wilkie, A. D. Williamson, Elizabeth R Wilson, J. W. Wilson, W. G. Wilson, and Elizabeth Young.

William A. Mackey gains the Brunton Memorial Prize awa to the most distinguished Graduate in Medicine of 1927.

Margaret W. Thomas gains the West of Scotland R.A. Memorial Prize, awarded to the candidate with the hig aggregate marks in Medicine, Surgery, and Midwifery in the M.B., Ch.B. Examination, 1927.

ST. THOMAS'S HOSPITAL DINNER.—The students' dinner will be held at St. Thomas's House, Lam Palace-road, on Friday next, Oct. 28th, at 7.30 for 8 Sir Charles Ballance in the chair.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—At a quarterly meeting of the Council on Oct. 13th, Sir Berkeley Moynihan, the President, in the chair, it was reported that the vacancy in the Council occasioned by the death of Mr. Thelwall Thomas would be filled at the election of members of Council in July next. The President further reported that a Sir Gilbert Blane gold medal had been awarded to Surgeon-Lieut. Commander Allan Watt McRorie, M.B., R.N.—Mr. C. J. S. Thompson, M.B.E., formerly director of the Wellcome Historical Medical Museum, was asked to act as honorary curator of the historical section of the museum (including surgical instruments and appliances), in succession to the late Mr. Alban Doran, F.R.C.S., for the ensuing year.

The result of the recent poll of the Fellows about altering the constitution of the College was announced as follows: The question asked was, "In your opinion is it desirable that members of the College should have direct representation upon the Council?" The voting was, "No," 846; "Yes," 234; majority against, 612.

The annual report of the Council, 1927, was approved and adopted, and will be placed before the Fellows and Members at the annual meeting on Thursday, Nov. 17th.—The President reported that Sir Holburt Waring had consented to deliver the next Hunterian oration, and it was decided to celebrate the bicentenary of the birth of John Hunter on Feb. 14th, 1928, either by bringing forward by one year the usual Hunterian festival, or in some other manner.

The under-mentioned diplomas were conferred by the Council:—

F.R.C.S.—Nils L. B. V. Eckhoff, M.R.C.S., L.R.C.P., Cape and Guys.

M.R.C.S.—G. M. Phadke, University College.

L.D.S.—M. Abrahamson, Middlesex and Royal Dental Hosps.

The *Thomas Vicary Lecture* will be delivered in the theatre of the College on Thursday, Nov. 3rd, at 5 P.M., by Dr. George Parker, whose subject will be the Early Development of Hospitals.—The *Bradshaw Lecture* will be delivered on Thursday, Nov. 10th, at the same place and hour by Sir Cuthbert Wallace. It is entitled Enlarged Prostate: A Review. Members of the profession who are not Members or Fellows of the College will be admitted to these lectures on presentation of their private visiting cards.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH, ROYAL COLLEGE OF SURGEONS OF EDINBURGH, AND ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.—At examinations held recently the following candidates were granted the diploma in Public Health:—

Hassan Suhrawardy, William B. Moore, Angus E. W. McLachlan, James O. Hamilton, Jeannie Kean, Charles K. Robertson, John Douglas, Andrew McFarlane, and Archibald Gardiner.

The following candidate passed Part I.:—

Eleanor B. Bone.

THE Prix Hollandais, awarded for the best work of the year in physical anthropology, has gone to Miss Dorothy A. E. Garrod, whose volume on the Later Palæolithic Age in Britain was published in 1926 by the Clarendon Press. The prize is of the value of 7000 French francs, say £57.

UNIVERSITY COLLEGE HOSPITAL DINNER.—The annual dinner of past and present students was held at the Hotel Cecil on Oct. 14th, when Sir George Blacker presided over a large gathering. In the course of his report on the past year, the Dean, Dr. A. M. H. Gray, mentioned that the centenary of the medical faculty of University College fell in 1928. He said that, with its new obstetric and aural hospitals, University College Hospital now possessed 500 beds, and in buildings and equipment was second to no hospital in London. Among the investigations carried out in the medical school during the past year he mentioned the synthesis of thyroxin by Dr. C. R. Harington, a notable achievement in biochemistry. He also referred to the severe loss which the hospital had recently sustained in the deaths of its chairman and vice-chairman, Sir Ernest Hatch and Lord Oranmore and Browne.

ROYAL ACADEMY OF MEDICINE IN IRELAND.—The annual meeting was held on Oct. 14th, Sir William Taylor was elected President in succession to Sir James Craig, whose term of office had expired. Sir William Taylor is Regius Professor of Surgery in the University of Dublin, and is one of the surgeons to Sir Patrick Dun's Hospital; he has been a Fellow of the Academy since 1898. The following were elected on the General Council: Sir James Craig, Mr. R. C. B. Maunsell, Sir John Moore, Dr. T. G. Moorhead, Dr. G. E. Nesbitt, and Prof. R. J. Rowlette. The following were elected presidents of the several sections: Medicine, Dr. G. E. Nesbitt; surgery, Mr. Andrew Fullerton; pathology, Mr. T. T. O'Farrell; obstetrics and gynæcology, Dr. G. FitzGibbon; anatomy and physiology, Prof. J. M. O'Connor; State medicine, Dr. J. W. Bigger.

UNIVERSITY OF LONDON: *University College Hospital.*—Three lectures on the History of Medicine (illustrated by lantern slides) will be delivered by Dr. Charles Singer on Mondays, Nov. 7th, 14th, and 21st, at 4.15 P.M., in the large lecture theatre No. 1, of the Medical School. The subjects will be respectively Syphilis, Influenza, and Typhoid Fever, and the lectures will be open to all medical students of the University.

UNIVERSITY OF OXFORD.—The new School of Biochemistry will be opened to-day (Friday), Oct. 21st, by Viscount Cave, Lord Chancellor of England and Chancellor of the University. The ceremony will be held in the Sheldonian Theatre at 3.30 P.M., after which, at about 4 P.M., the Chancellor will proceed to the new department which will be opened for inspection.

BROADCASTING AND PUBLIC HEALTH.—On Oct. 5th Dr. G. F. Buchan, ex-president of the Society of Medical Officers of Health, broadcasted an address from 2 LO on Health and Education. This is said to be the first time that a medical officer of health has broadcasted in this country.

INTERNATIONAL OTO-RHINO-LARYNGOLOGICAL CONGRESS.—The provisional programme has now been issued of this Congress to be held at Copenhagen from July 29th to August 1st, 1928, under the presidency of Prof. E. Schmiegelow. The Secretary-General is Dr. N. R. Blecvad, 3 Nytorv, Copenhagen, K.

AN ASTHMA RESEARCH COUNCIL.—A new organisation has been formed called the Asthma Research Council. The Earl of Limerick and Lord Greenway are to act as president and vice-president respectively, and the honorary secretary is Capt. F. L. M. Boothby. The offices are at 12, Bedford-street, Strand, London, and the Council is stated to be "anxious to get in touch with all asthma sufferers."

UNIVERSITY OF MANCHESTER.—Dr. R. B. Wild, who has recently retired from the Leech Chair of Materia Medica and Therapeutics, has made a gift of £250 for the endowment of a prize in pharmacology. Prof. J. S. B. Stopford has been appointed as representative of the University on the General Medical Council; Mr. C. A. McGaughey, M.R.C.V.S., has been appointed assistant lecturer and Dr. E. St. G. Gilmore demonstrator in bacteriology; and Dr. H. C. Sheehan has been appointed demonstrator in pathology.

DONATIONS AND BEQUESTS.—The late Baroness Marie von Schröder, of The Rookery, Worleston, Nantwich, left £500 each to the Nantwich Cottage Hospital and the Crewe Cottage Hospital—Mr. Joshua Fearnside Sinclair, of Otley, solicitor, left £500 to the Otley and District Nurses' Home, £300 to the Otley Ladies' Sick Nursing Visiting Society, and £1000 to the National Children's Home and Orphanage.—Mr. C. Collins, of Edgbaston, left the whole of his property, £13,963, to his wife for life, and on her death, after several legacies, the residue between the General Hospital, Queen's Hospital, Children's Hospital, General Dispensary, Women's Hospital, and the Eye Hospital, Birmingham, and the Blind Asylum, Edgbaston.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—On Monday, Oct. 24th, at 5 P.M., at the rooms of the Medical Society of London, 11, Chandos-street, Cavendish-square, Mr. Herbert Paterson will deliver a lecture entitled Surgical Hints. On the same afternoon, at 2 P.M., Mr. J. B. Hunter will give a surgical clinical demonstration at the Royal Northern Hospital, and on Tuesday, the 25th, at 3 P.M., there will be a medical clinical demonstration at the same hospital, by Dr. Bruce Williamson. At the Central London Ophthalmic Hospital, on Thursday, Oct. 27th, at 4 P.M., Mr. Cunningham will give an ophthalmic clinical demonstration. The lecture and the demonstrations will be open to members of the medical profession without fee. From Oct. 24th to Nov. 5th, there will be a special course in ophthalmology at the Royal Eye Hospital, with demonstrations daily at 3 P.M. Courses in the following subjects will be given during November: Medicine, Surgery, and the Specialties, at the Hampstead General Hospital, 4 to 6.30 P.M., Oct. 31st to Nov. 12th; a similar course at the London Temperance Hospital, Nov. 21st to Dec. 3rd; Medicine, Surgery, and Gynæcology at the Royal Waterloo Hospital, afternoons and some mornings, Nov. 14th to Dec. 3rd; Diseases of the Chest at the Brompton Hospital, all day, Nov. 7th to 12th; Neurology, at the West End Hospital for Nervous Diseases, Nov. 21st to Dec. 17th, daily at 5 P.M.; Proctology at St. Mark's Hospital, Nov. 28th to Dec. 3rd; Urology at St. Peter's Hospital, afternoons, Nov. 14th to 26th; and Venereal Diseases, at the London Lock Hospital, afternoons and some evenings, Oct. 31st to Nov. 26th. Copies of all syllabuses are obtainable from the secretary of the Fellowship at 1, Wimpole-street, London, W.

Dr. Joseph Priestley, on his retirement after 32 years' service as medical officer of health for Lambeth, is to receive a presentation from fellow practitioners of the locality. The ceremony will take place on Thursday, Oct. 27th, at the town hall.

HANBURY MEMORIAL MEDAL.—The gold medal from time to time awarded in memory of Daniel Hanbury for "high excellence in the prosecution or promotion of original research in the Chemistry or Natural History of Drugs" has been given this year to Mr. T. A. Henry, D.Sc., Director of the Wellcome Chemical Research Laboratories, London. Since 1881 there have been 21 recipients of the medal, seven of whom were British and six German. The trustees of the fund are the Council of the Pharmaceutical Society of Great Britain.

PURITY OF ICE-CREAM.—A deputation representing the Ice-Cream Association of Great Britain and Ireland waited on officials of the Ministry of Health on Oct. 11th and suggested that a legal definition of ice-cream should be laid down—namely, "a frozen product containing not less than 8 per cent. milk-fat and not less than 10 per cent. milk solids not fat." It was proposed that all manufacturers and vendors of ice-cream should be licensed by local authorities who should inspect their premises. The view of the association is said to be that those who want to sell a frozen confection which contains no cream should be compelled to use some description not containing the word "cream."

SURGICAL INSTRUMENT MANUFACTURERS' ASSOCIATION.—The annual dinner of this Association was held at the Holborn Restaurant on Oct. 14th, under the presidency of Mr. E. W. Mayer. The guests included Sir John Corcoran, Mr. Cecil Rowntree, F.R.C.S., and Mr. L. Ferris-Scott. Mr. Patrick C. Maw, proposing the health of The Association, regretted that they had failed to secure protection for their industry, but said that efforts were being made to secure an Order under the Merchandise Marks Act for the marking of all imported surgical instruments with the country of origin. Mr. Rowntree said that British surgical instruments were the best in the world; not only were they the best, but they were works of art which could compare with the artistic products of the forge and bench in any walk of life. Mr. Ferris-Scott remarked on the enormous debt which the medical profession owed to the surgical instrument makers of this country.

CONGRESS OF HYDROLOGY AT LYONS.—The Twelfth International Congress of Hydrology, Climatology, and Medical Geology was held at Lyons from Oct. 4th–12th. Large numbers of medical men, chiefly from France, took part in the proceedings. At the closing session, over which Mr. Herriot, Minister of Public Instruction and Mayor of Lyons, presided, Dr. Fortescue Fox, representing the British Government, referred to the English reputation for insularity and affirmed that it was now impossible for any country to live for itself alone. In science, at any rate, the English were internationalists. The branch of medicine with which the Congress was concerned was in a strange position, because, although it was the most ancient part of medical treatment, although it was widespread in all countries, although generations had proved its benefits, its intimate secrets had still to be discovered. The work of discovery had been begun, nowhere better than in France, but very much remained to establish the foundations of our knowledge and to make it generally available.

ROYAL VICTORIA HOSPITAL, BELFAST.—The present session opened on Oct. 14th, when an address was delivered by Mr. P. T. Crymble. Contrasting the mental outlook of the undergraduate and the graduate in medicine, he pointed out that the former had his course mapped out for him and a clear path to pursue, whereas the latter had various possibilities before him. General practice offered the easiest alternative, with a fair prospect of an early competence and the possibility of marriage. Specialism usually involved a long waiting period, but a higher qualification than that of M.B. was often advisable. The Services offered to many an attractive prospect—an immediate good income, a pension, and good social position—but it should not be overlooked that an income satisfactory to a single man of 24 was very inadequate for a married man of 45. He advised all his hearers to specialise to some extent upon some department of practice. One practitioner might become an expert radiographer, another might concentrate upon the digestive tract, another upon clinical bacteriology, another upon obstetrics. Even if they did not definitely specialise in such subjects their standards would be raised to a higher level. Mr. Crymble's address was enlivened by many happy strokes of wit, and was much enjoyed by the large audience. A cordial vote of thanks was passed to the lecturer on the motion of Colonel Andrew Fullerton, seconded by Dr. J. S. Morrow.

ROYAL NATIONAL ORTHOPÆDIC HOSPITAL.—On th ground that the constantly increasing work and scope this institution require the services of a younger and mo active man, the Earl of Denbigh has resigned the chairma ship, which he has held for a quarter of a century.

MANCHESTER AND SALFORD SKIN HOSPITAL.—Th Norris Midwood Memorial Wing of this institution, which h cost £14,000, was opened last week. The extension, whic contains a new X ray department, rooms for treatment b artificial sunlight, and additional acommodation for nurse increases the number of beds to 50. The wing is a memori to the late Mr. Norris Midwood, who was long a member the board.

MEDICAL MAYORS.—Dr. George Brown Hillma who has been elected Mayor of Wakefield, was educated the Leeds School of Medicine and has practised in the We Riding for 35 years. A member of the West Riding Coun Council, he also serves on the West Riding and Wakefie Insurance Committees, the East and West Riding Voluntar Hospitals Committee, and other public bodies. As chai man of the Medical Propaganda Subcommittee of th Yorkshire Council of the British Empire Cancer campaig he has become well known throughout the country f industry and enthusiasm.—Dr. Arthur Hastings Bosto has accepted the unanimous invitation of the Chichest City Council to serve as mayor during the coming yea His father, the late Dr. A. S. Bostock, was mayor Chichester in 1885, 1886, and 1891.

MR. CHAMBERLAIN ON HOSPITAL POLICY.—M Neville Chamberlain, the Minister of Health, has issued statement upon his hospital policy, in which he once mo points out the danger to the voluntary system of la of coöperation with other types of hospital. While the are thousands of empty beds in Poor-law hospitals, eve voluntary institution has a waiting-list. "In the nar of common sense, hospital accommodation should be treat as a whole so that there should be no waste." If the Poo law institutions became municipal hospitals the stig of pauperism would be removed and it would then not difficult to form some joint body, representing both typ which should decide upon the need of extension, the directi in which it is needed, and the place where it should provided. In this way the existing accommodation wo be used to the utmost extent by the interchange both patients and staff.—The Scottish Regional Committee the British Hospitals Association is asking the Secreta for Scotland to receive a deputation with a view to ascerta ing the policy of the Government in connexion with t proposed new Poor-law legislation for Scotland so far it affects the voluntary hospital system.

Medical Diary.

Information to be included in this column should reach in proper form on Tuesday, and cannot appear if it reac us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.
MONDAY, Oct. 24th.—8 P.M., ODONTOLOGY. Presiden Address by Mr. W. Rushton. Paper: Mr. F. Doubleday: Chronic Fuso-spirillary Infection of Periodontal Membrane and its Treatment.
TUESDAY.—5 P.M., MEDICINE. Paper: Dr. Vincent L (Philadelphia): The Technique and Usefulness Medical Biliary Drainage in Gall Tract Dise (Illustrated with lantern slides and moving pict film.)
WEDNESDAY.—5 P.M., COMPARATIVE MEDICINE. Pap Prof. O. Charnock Bradley: What is Comparat Medicine?
THURSDAY.—8.30 P.M., UROLOGY. Presidential Addr Mr. Frank Kidd: Purpura of the Urinary Tract.
FRIDAY.—5 P.M., DISEASE IN CHILDREN. (Cases at 4.30 P Dr. J. D. Rolleston: Hemiplegia following Sca Fever. Dr. E. A. Cockayne: Renal Dwarfism. W. M. Feldman: Pointing Empyema and Tubercu Rib. Prof. Dible and Dr. Chodak Gregory: Specim of Adenomatous Hypertrophy of Kidney. Other c will be shown. 8 P.M., EPIDEMIOLOGY. Paper: E. W. Goodall: The Epidemic Constitution.

MEDICO-LEGAL SOCIETY, 11, Chandos-street, W.
THURSDAY, Oct. 27th.—8.30 P.M., Sir W. H. Willc Recent Advances in Toxicology and Forensic Medi (Presidential Address).

MEDICAL SOCIETY OF LONDON, 11, Chandos-str Cavendish-square, W.
MONDAY, Oct. 24th.—8.30 P.M., Dr. B. B. Vincent L U.S.A., will introduce a discussion on the Develop of the Duodenal Tube and its Practical Value Diagnosis and Treatment.

ST. JOHN'S HOSPITAL DERMATOLOGICAL SOCIETY, St. John's Hospital for Diseases of the Skin, 49, Leicester-square, W.C.
WEDNESDAY, Oct. 26th.—4.15 P.M., clinical cases and discussion on Pemphigus, to be opened by Dr. J. E. M. Wigley.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.
MONDAY, Oct. 24th, to SATURDAY, Oct. 29th.—FELLOWSHIP OF MEDICINE. Special lecture at the Medical Society, 11, Chandos-street, W., Mon., 5 P.M., Mr. Herbert J. Paterson: Surgical Hints.—ROYAL NORTHERN HOSPITAL, Holloway-road, N. Special surgical demonstration by Mr. J. B. Hunter at 2 P.M. on Mon. Special medical demonstration by Dr. Bruce Williamson at 3 P.M. on Tues.—CENTRAL LONDON OPHTHALMIC HOSPITAL, Judd-street, W.C. Special ophthalmic demonstration by Mr. Cunningham at 4 P.M. on Thurs. (The above are open to the medical profession without fee.)—ROYAL EYE HOSPITAL, St. George's Circus, S.E. Series of demonstrations on the Diagnosis and Treatment of Diseases of the Eye by members of the staff in the afternoons at 3 P.M. Mon. to Fri.—PADDINGTON GREEN CHILDREN'S HOSPITAL AND VICTORIA HOSPITAL FOR CHILDREN. Combined course in Diseases of Children, occupying all day. Sessions at each hospital alternately.—CHELSEA HOSPITAL FOR WOMEN, Arthur-street, S.W. Course in Gynæcology. Operations and lectures daily.—THE NATIONAL HOSPITAL, Queen-square, W.C. Special two months' course in Neurology. Further information from the Secretary, Mayfair 2236.

WEST LONDON HOSPITAL, POST-GRADUATE COLLEGE, Hammersmith, W.
MONDAY, Oct. 24th.—11 A.M., Mr. Tyrrell Gray: Surgical Wards. 2 P.M., Mr. Armour: Operations. 4.30 P.M., Mr. Addison: Appendicitis (lecture).
TUESDAY.—10 A.M., Medical Registrar: Ward Demonstration. 2 P.M., Mr. Sinclair: Surgical Out-patients. 4.30 P.M., Dr. Shaw: Emphysema.
WEDNESDAY.—10 A.M., Dr. Owen: Medical Diseases of Children. 10 A.M., Dr. Burnford: Medical Wards.
THURSDAY.—10 A.M., Dr. Grainger Stewart: Neurological Department. 2 P.M., Dr. Ironside: Medical Out-patients. 3 P.M., Sir H. Simson: Gynæcological Ward.
FRIDAY.—10 A.M., Dr. Dowling: Skin Department. 2 P.M., Mr. Addison: Operations. 2 P.M., Dr. Shaw: Medical Out-patients.
SATURDAY.—9.30 A.M., Dr. Burnford: Bacterial Therapy and Ward List. 10 A.M., Dr. Owen: Medical Diseases of Children.
Operations, Medical, Surgical, and Special Out-patients, daily 10 A.M. to 5 P.M.: Saturdays, 10 A.M. to 1 P.M.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION, St. James's Hospital, Ouseley-road, Balham, S.W.
THURSDAY, Oct. 27th.—4 P.M., Dr. Hector C. Cameron: Pneumococcal Infections in Childhood.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.
MONDAY, Oct. 24th.—2.30 P.M. to 5 P.M., Medical, Surgical, and Gynæcological Clinics. Operations.
TUESDAY.—2.30 P.M. to 5 P.M., Medical, Surgical, Throat, Nose, and Ear Clinics. Operations.
WEDNESDAY.—2.30 P.M. to 5 P.M., Medical, Skin, and Eye Clinics. Operations.
THURSDAY.—11.30 A.M., Dental Clinic. 2.30 P.M. to 5 P.M. Medical, Surgical, and Ear, Nose, and Throat Clinics. Operations.
FRIDAY.—10.30 A.M., Throat, Nose, and Ear Clinics, 2.30 P.M. to 5 P.M., Surgical, Medical, and Children's Diseases Clinics. Operations.
There will also be a special demonstration of ear, nose, and throat cases at 2 P.M. on Tues., Oct. 25th, and of surgical cases at 2 P.M. on Thurs., Oct. 27th, by Mr. W. Ibbotson and Mr. H. W. Carson respectively.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.
THURSDAY, Oct. 27th.—4 P.M., Mr. Doyne: Corneal Ulceration.

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.C.
WEDNESDAY, Oct. 26th.—4 P.M., Sir H. Gauvain: Tuberculosis as a Problem of Childhood.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 49, Leicester-square, W.C.
TUESDAY, Oct. 25th.—5 P.M., Dr. H. W. Barber: Immunity and Anaphylaxis.
THURSDAY.—5 P.M., Dr. W. Griffith: Principles of Treatment. General.

PEOPLE'S LEAGUE OF HEALTH, 12, Stratford-place, W.
WEDNESDAY, Oct. 26th.—4 P.M., Prof. F. T. G. Hobday: Some Diseases Conveyed to Man from Animals and their Prevention.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE COURSE.
TUESDAY, Oct. 25th.—4.15 P.M., Dr. C. H. Melland: Some Medico-Legal Cases.
FRIDAY.—4.15 P.M., Dr. J. Gray Clegg: Microscopy of the Living Eye.

UNIVERSITY OF SHEFFIELD POST-GRADUATE CLINICS.
FRIDAY, Oct. 28th.—3.30 P.M., Mr. Hay: Clinical Cases.

Appointments.

GORDON, A. KNYVETT, M.B., B.Chir. Camb., has been appointed Hon. Consulting Pathologist to the Victoria Hospital, Swindon.
KISSEN, H.S., M.B., Ch.B. Edin., Outdoor Medical Officer for the Springburn District of Glasgow.
MACMILLAN, D., M.D. Edin., Junior Assistant Physician at Crichton Royal, Dumfries.
MOORE, D. L. H., M.B., B.Ch. Dub., Certifying Surgeon under the Factory and Workshop Acts for the Exmouth District of the County of Devon.

Vacancies.

For further information refer to the advertisement columns.
Bermondsey Guardians, Ladywell Poor-law Institution, Ladywell-road, Lewisham, S.E.—M.O. £400.
Bermondsey Guardians, Shirley Schools, Wickham-road, nr. Croydon.—Part-time M.O. £350.
Birmingham and Midland Eye Hospital.—Res. Surg. O. £150.
Birmingham, Witton Babies Hospital.—Res. M.O. £150.
Birmingham, Woodlands Open Air Orthopædic Hospital.—Jun. H.S. At rate of £150.
Bolingbroke Hospital, Wandsworth Common, S.W.—H.P. At rate of £120.
Brighton, Royal Alexandra Hospital for Sick Children.—H.S. At rate of £120. H.P. At rate of £100.
Bristol, Brunswick Maternity Hospital, Brunswick-square.—Asst. Phys.
Burton-on-Trent, Bretby Hall Orthopædic Hospital.—Res. M.O £450.
Cambridge, Addenbrooke's Hospital.—Hon. Asst. P. to Out-patient Dept.
Cancer Hospital, Fulham-road, S.W.—H.S. At rate of £100.
Central London Ophthalmic Hospital, Judd-street, W.C.—Asst. Surg.
Colindale Hospital, Hendon.—Jun. Asst. M.O. £500.
Croydon General Hospital.—Cas. H.S. £125.
Derby, Derbyshire Royal Infirmary.—Ophth. H.S. £150.
Dumfries, Crichton Royal Mental Hospital.—Clin. Pathologist. £400.
Edinburgh Royal Infirmary, Eye Dept.—Sen. Clin. Asst., &c. £145.
Hospital of St. John and St. Elizabeth, 40, Grove End-road, N.W. Asst. S.
Liverpool City.—Medical Visitor under Lunacy Act.
Metropolitan Ear, Nose, and Throat Hospital, Fitzroy-square, W. H.S. £150. Also Anæsthetist.
Newark Hospital and Dispensary.—Res. H.S. At rate of £150.
Ovamboland, South-West Africa.—District S. £1000.
Portsmouth, St. Mary's Infirmary, &c.—Third Asst. Res. M.O. £250.
Royal London Ophthalmic Hospital, City-road, E.C.—Pathologist and Curator. £200. Also Dental Surg.
Royal Waterloo Hospital for Children and Women, Waterloo-road, S.E.—H.S. At rate of £100. Also Asst. Radiologist. £50.
St. Leonard's Hospital, Shoreditch.—Asst. M.O. £350.
Salford City.—Asst. Maternity and Child Welfare M.O. £600.
South Wales Sanatorium, Talgarth, Breconshire.—Res. M.O. £350.
Swansea Hospital.—H.S. to Ophth. and Aural Depts. £150–£200.
Swindon, Wilts, Victoria Hospital.—Res. M.O. At rate of £100.
University College Hospital, Gower-street, W.C.—Asst. Radiologist. £200.
University of London.—Associate Examiners.
Wallingford, Berks Isolation Hospital.—M.O. £15 15*s.* and £1 10*s.* per case admitted to Hospital.
Willesden, General Hospital, Harlesden-road, N.W.—P. in charge of Dept. for Dis. of Skin.
Wolverhampton and Staffordshire Hospital.—Hon. Fracture and Orthopædic S.
The Chief Inspector of Factories announces a vacant appointment for a Certifying Factory Surgeon at Snodland (Kent).

Births, Marriages, and Deaths.

BIRTHS.

DUNCANSON.—On Oct. 11th, at Braxted-park, Streatham, S.W., the wife of Dr. J. Gray Duncanson, of a daughter.
MATSON.—On Oct. 13th, at Woking, the wife (*née* Viveash) of Robert C. Matson, M.R.C.S., L.R.C.P., Captain, R.A.M.C. (retd.), of Fir Ridge, Hook Heath, Woking—a son.
SLEIGH.—On Oct. 11th, the wife of Dr. J. C. Sleigh, Albany Cottage, Dedham, of a daughter.

DEATHS.

BRIDGES.—On Oct. 6th, at 2, Courtfield-road, S.W., Helen Constance (*née* Scott), the devoted wife of E. Chittenden Bridges, M.D.
DOWN.—On Oct. 14th, at 9, The Crescent, Plymouth, Edith Monica Down, M.B., B.S., eldest daughter of Dr. and Mrs. Elgar Down.
MACPHERSON.—On Oct. 15th, at Evelyn-gardens, S.W., Major-General Sir William Grant Macpherson, K.C.M.G., C.B., LL.D., aged 69.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Comments, and Abstracts.

THE PHYSIOLOGICAL BASIS OF THE MINIMUM WAGE.*

BY V. H. MOTTRAM, M.A. CAMB.,
PROFESSOR OF PHYSIOLOGY IN THE UNIVERSITY OF LONDON, AND HEAD OF THE PHYSIOLOGY LABORATORY, KING'S COLLEGE FOR WOMEN (HOUSEHOLD AND SOCIAL SCIENCE DEPARTMENT).

AT first sight the task of calculating the cost of living at a subsistence level appears simple. The amount disbursed for food in the working-class household varies from about 50 per cent. of the total income to 66 per cent., or even higher. As the income decreases the proportion which goes on food rises, till it reaches its highest level among the very poorest.[1] If the physiologist can calculate the minimum cost of a theoretically sufficient diet—one which yields sufficient calories, protein (both first-class and otherwise), fat, carbohydrates, salts, roughage, and vitamins A, B, C, D, and E—he has given a figure for by far the largest portion of the cost of subsistence. With the help of the economists, it should not be difficult to calculate the cost of the remaining moiety of expenses. The sum of the two would give the cost of subsistence—a cost upon which the minimum wage surely must be based.

Minimum Cost of Subsistence.

It is quite easy to calculate the minimum cost of a theoretically sufficient diet, and I imagine that economists, in collaboration with physiologists and medical men, would have little trouble in calculating the minimal cost of adequate heating, lighting, shelter, and clothing. The sum is the minimal cost of subsistence. But this is exactly where the trouble begins. Apart from the fact that it is debatable whether a minimum wage should ever be allowed to sink so low as the minimal cost of subsistence, and whether the individual or the family should count as the unit, it is clear that, while the armchair physiologist and economist may be able to calculate a theoretical minimum subsistence cost, it is the community which will have to decide whether their conclusions are just and practicable. Psychology invades the problem, for man is no Robot, whom you can stoke with the same monotonous fare day after day. He demands some modicum of variety.

Here, for example, is an attempt to calculate a subsistence level diet.[2] It contains 7¼ oz. of fresh herrings, 1 lb. 7 oz. of oatmeal, and 4 oz. cabbage per day. This diet is obtained by taking the cheapest source of animal protein (fresh herrings) and providing enough to give 30 g. per day. Then the remainder of the day's calorie needs is supplied by the cheapest source of calories (oatmeal), and 4 oz. of cabbage added to supply vitamin C. Theoretically this diet would yield over 3000 great calories, 100 g. of protein—30 per cent. of this being first-class protein—reasonable proportions of fat and carbohydrate (74 : 459), and vitamins A, B, C, D, and E. The cost of this diet is about 6*d.* per day, or, accurately, 3*s.* 4½*d.* per week. This is the lowest conceivable diet upon which subsistence with efficiency is possible.

But, of course, such a subsistence diet is impossible. No one could swallow 1½ lb. of oatmeal a day, nor tolerate the monotony of the diet, even supposing he had the physiological knowledge to purchase such a diet and the practical knowledge of how to cook and serve it so that it were not revolting. One thing which has become abundantly clear in physiological research is that appetite,[3] as apart from hunger, has much to do with the proper digestion, assimilation, and utilisation of food. The physiological engines of the body are guided partly by the psychological condition of their owner. Consequently no subsistence diet, however admirable from the theoretical point of view, such as the one given, can be accepted as practical.

Calculation from pre-War Data.

The next method of approximating to the cost of a practical minimum food expenditure is to take diets which in the past have been considered to be sufficient, based on investigation into the way in which the working classes live. It is obvious that you must respect their traditions, and, if necessary, develop or modify them by education as much as is possible. It is no use trying to impose a diet foreign to their traditions from without.

This has been done in the past by many investigators and more notably by Rowntree,[4] who has published data of suggested minimal diets for the working class. These data have been accepted, if not for practice, at any rate as a basis of discussion. The latest figures he gives are for 1914, and the cost of his dietary works out at about those of convicts and inmates of workhouses at the prevailing rates at the time when the estimates were made. We might take these figures and multiply them by an index to represent the rise in the cost of food and take the result (approximately 7*s.* 6*d.* per week) to represent the cost of a subsistence diet for an adult male—not, of course, a theoretical subsistence diet, but a diet upon which it is not wise to economise.

Unfortunately much has happened in the world of dietetics since 1914. Consequently it has seemed better to recalculate from the beginning so that the newer knowledge of the vitamins, the importance of first-class protein and of mineral matter and roughage, and the value of the imponderables in dietetics, such as flavour, service, and personal likes and dislikes as regards food, should be given due weight.

Calculation from Modern Data.

Let us make the assumption that an adult male needs from 3000 to 3500 great calories per day, which are to be obtained from the combustion of about 100 g. of protein (30 per cent. of which must be first-class protein), 50 to 100 g. of fat, and of 400 to 500 g. of carbohydrate. Further let us assume that this dietary must contain vitamins A, B, C, D, and E, some roughage and mineral matter—e.g., iron, phosphorus, calcium, chlorine, and iodine. Most investigators would agree that such a diet is adequate though no satisfactory estimates exist of the necessary amounts of vitamin-containing foods. In addition, the diet must be varied and palatable, and not depart markedly from what is acceptable to a working-class community.

Below is an attempt to construct a cheap and satisfactory dietary which will satisfy the criterions we have adopted above. It was obtained in the following way. The late Sir William Bayliss's[5] aphorism, "Take care of the calories and the proteins will take care of themselves," is roughly true and served as the starting-point. It was assumed that it would be possible to discover an adequate diet costing on the average about 3*d.* per 1000 calories. (Agricultural labourers in Essex manage on 3·3*d.* per 1000.) Foods were ranged in the order of their cost per 1000 calories and the main bulk of the diet chosen from those foods the cost of which was 6*d.* per 1000 or under. These included haricot beans, white flour, wholemeal, oatmeal, white and brown breads, vegetable and animal margarine, macaroni and spaghetti, dried peas, sago, sugar, dates, tapioca, currants, figs, potatoes, suet, treacle, neck of (imported) mutton. From inspection of this list it was clear that while it would be easy to obtain the calories, it would not be easy to get variety, first-class protein and the vitamins, particularly A, C, and D. Consequently, therefore, there was added to it fresh herrings (for first-class protein and vitamins A and D), cheese (first-class proteins, vitamins A and (?) D), cabbage, tomato, lemon, lettuce or watercress (to supply vitamin C, mineral salts and roughage), beef and bacon (to give variety) and milk. Cocoa and tea were adopted as beverages.

From such a list of foods my colleague, Miss Jessie Lindsay, who is in charge of the Household Work Department of this College, aided by Miss Tress, worked out a series of menus for a week which, when analysed, gave 12 oz. meat, 2¾ pints of milk, 8¾ oz. sugar, 14¾ oz. treacle, 8¾ lb. of bread and flour, 4 oz. cheese, 8 oz. margarine, 3½ lb. of potatoes, 1 lb. 5 oz. fresh fruit and vegetables, 13½ oz. suet and dripping, 14¼ oz. oatmeal, macaroni, &c., 1 oz. cocoa, ¼ lb. tea, 1 lb. herrings, 1½ lb. of dried fruit, and 9 oz. pulses.

These figures closely approximate to the distribution of foodstuffs found in actual use by A. B. Hill, by Rowntree, and by the 1918 Agricultural Wages Board Inquiry.[6] The meat is slightly reduced below Hill's and Rowntree's estimates, and considerably below the Wages Board Inquiry, while the milk is increased and the fish, fats, cereal products, and dried fruits largely increased. This has been done to obtain the benefit of the protein and calorigenic value of milk,[7] the protein and vitamin A and D values of herrings, and the high calorigenic values of the cereals and the dried fruits.

When this dietary is analysed for proteins, fats, carbohydrates and calories the yield is, per day, approximately 94 g. of protein (of which 29 g. is first-class protein), 115 g. of fat, 545 g. of carbohydrate, and 3350 great calories. Vitamins A and D are represented in the meat, the herrings, the suet, the milk, and probably in the dripping; vitamin B in the oatmeal, bread and vegetables; and vitamin C in the tomato, lemon, and potatoes.

Such a diet as regards proteins is about adequate, while in fat, carbohydrate, and calories it is adequate. As regards vitamin C, perhaps it is adequate (one tomato, one lemon, and ½ lb. cabbage per week). Its cost, at the lowest prices prevailing at the moment, is 6*s.* 3*d.* [These figures are for London, October, 1927.]

A Reasonable Dietary.

Of course, the dietary would not suit all tastes. It is a north country rather than a south country diet, but

* Introducing a discussion at the Conference on Family Endowment, Oct. 15th, 1927.

the types of food used—e.g., oatmeal—and in the amount of cooking required. It would not be easy to cook it on a gas-ring shared by one or two other families. Further, some of the dishes to be prepared—e.g., macaroni cheese—are not popular in the working-class quarter in which inquiries have been made, and some foods, such as dried fruits, though popular, are not consumed in the quantities suggested. Unfortunately, almost any alteration to meet such prejudices would at once raise the cost, excepting a diminution of the dried fruits and the substitution for them of other foods. Oatmeal and macaroni are among the cheapest sources of calories, so that substituting them by anything but bread and margarine would raise the price and decrease the variety; while cutting down the dried fruit would have the disadvantage of loss of flavour from a dietary which tends to monotony. Other cheap cuts of meat—e.g., neck of mutton, flank of beef—could be substituted for the cut used (shoulder steak) with no loss in economy.

Apart from these criticisms, which more reasonable housing and education might remove, the dietary is a reasonable one; it has variety; it provides the requisites and departs but little from foods actually in use among the labouring classes. Its price tallies with that of the most economical and at the same time efficient diet which we have met: one among the 98 family budgets investigated by A. B. Hill.[6] (The actual figures of these budgets are not given in the communication referred to, but may be obtained through the courtesy of the editor of the *Journal of Hygiene*.) Among these 98 families there are eight whose expenditure on food is successful in obtaining an adequate diet. The prices paid for food per "man value" had a large range—i.e., from 6*s*. 3*d*. to 12*s*. 1*d*. It will be noted that one family was able—even though its man value was 4·86—to obtain a diet at the same figure as the one we suggest. The next above works out at 7*s*. per man value.

We may assume, therefore, that with skilful purchasing at the cheapest market, based either on a long experience or on a knowledge of dietetics, a dietary can be obtained at as low a cost as 6*s*. 3*d*. per week per adult male, so long as the occupation followed is not a very strenuous one. Below such an expenditure it is unlikely that bodily efficiency could be purchased. This sum, therefore, sets the limit from which we may proceed to estimate what minimal subsistence will cost. It must be realised, however: (1) that this figure was arrived at when food prices were low, and that any attempt to put it into practice must allow for fluctuations in the prices of foods; and (2) that it demands skill in laying out of money which only one or two housewives in a hundred appear to have. Although this figure is used throughout the rest of the discussion, my own prejudice is in favour of raising it to 7*s*. per week.

Relation of Food to Total Expenditure.

The next step is to assess what relation the money spent on food should bear to the total income. It is tempting for the physiologist to say that we ought to be able to discover the cost, at present conditions of housing, &c., in any district, of the minimum of light, air, warmth, and clothing which hygiene demands, and thus give an estimate of the cost of subsistence based entirely on physiological principles. By adding the cost of the minimal requirements of light, air, heating, and clothing to the cost of the minimal requirements of food we get the cost of subsistence with efficiency. For the present, however, it may be doubted whether this is possible, partly because one has a shrewd suspicion that the housing accommodation to meet the demands of hygiene simply does not exist.

The utmost that can be done is to multiply the cost of the minimal dietary by a definite factor, based on the average relation of the money spent as food to the total income. In actual investigations the figure runs from about 50 per cent. to 75 per cent. As was said in the opening sentences, the lower percentage is found among those whose wage is relatively good, while the higher percentage is found among the poorest. A. B. Hill's figures for the whole of the families investigated average at 68·8 per cent. We might take, as has been done in the past, a factor such as 66·7 per cent. This is sufficiently close to Hill's actual findings as well as to the findings of many other investigators in the list. This would bring the minimum subsistence figure to 6*s*. 3*d*. $\times \frac{3}{2}$ or to 9*s*. 4½*d*.

The obvious criticism of this method is that though by careful scientific discussion of a dietary, expenditure on it can be cut down without detriment to health, the amount to be spent on rent, clothing, light, and heat is not capable of such reduction. No amount of consideration will cut down the price of oil and coals. Consequently to multiply the cost of a minimal efficient diet by 150 per cent. and say that that figure should indicate the cost of subsistence is manifestly unfair. We are left with the unsatisfactory method of making a guess, though it be a guess based on definite facts. My guess is that it will be fair to assume that the food budget, reduced as it is by scientific considerations to its lowest limit, should represent 60 per cent. of the expenditure for subsistence. This gives an estimate of 10*s*. 5*d*. as the lower limit of the cost of living for the adult male. If the higher figure of 7*s*. a week for food be adopted, the basic minimum becomes 11*s*. 8*d*.

This figure is provisional only. It is based on assumptions which may turn out to be untrue. It must be increased if longer hours per day are worked, or more arduous work undertaken. It must vary with the varying levels of prices. It will alter from place to place and time to time, and it will be affected by what the public conscience demands in the way of housing, lighting, heating, sanitation, &c.

The figure, 10*s*. 5*d*. (or, if we take the more cautious estimate, 11*s*. 8*d*.), is the basic figure for the adult male. The problem arises: what of the wife and children of the adult male? As long as the unit in the country is supposed to be the family and not the individual, so long must the basic minimum be raised from its adult male value to the value equivalent to a family expressed as adult males. Thus a family of father, mother, and one child under 6 counts as 1+0·83+0·5 adult males=2·33.

A Statistical Fiction.

There is a fiction of a "standard family" which consists of father, mother, and three children, and is supposed to be approximately equivalent to four adult males. For such a family the income per week should not fall below 4 × 10*s*. 5*d*., or 41*s*. 8*d*.

The "standard family" is not even a convenient abstraction, for in no way does it correspond to reality. In the Essex budgets[6] the man value of the family (on a rather low standard of estimation[8]) was on the average of 98 families as high as 4·9, instead of the "standard family" of 4. Of the 63 families receiving less than the average income per "man," six only had "standard families"; the rest had larger families. No family obtained a diet which the physiologist would pass as adequate. Of 35 families receiving more than the average wage per man, 27 were below the physiological minimum, while only eight exceeded it. Six of these successful families counted for much less than the "standard family"—1·83 to 3·23—and one of the two families of more than standard size was living rent free. It is fairly clear from consideration of even these figures only that the standard family is a myth, and that a large family usually coincides with poor living. (Incidentally the almost complete inability of this group of families to obtain satisfactory food on an income per man value averaging 8*s*. 0¾*d*. is evidence that the figure we have chosen—viz., 10*s*. 5*d*.—is no wild Utopian figure.)

Summary.

Any attempt to calculate from physiological principles the minimum wage which should be paid on the assumption that the family is the unit, must take into account the size of the family. The needs of the family—more particularly their food needs—vary with the size of the family. Whether it is feasible to adjust a minimum wage so that it is adapted to the size of each individual family, and if feasible, whether right and proper, are questions into which economists and politicians must probe and the electorate settle. The following statements summarise the position so far as it concerns the physiologist:—

1. A basic minimum diet for an adult male costs at the present time, and in the cheapest London markets, at least 6*s*. 3*d*. per week.

2. If we assume that 60 per cent. of the income of a person at subsistence level should go on food, the minimal expenditure per week per adult male should not go below 10*s*. 5*d*. The actual figure must vary with market fluctuations of price.

3. Should we proceed to calculate a minimum wage on the assumption that each male wage-earner is the head of a standard family equal to four adults, we should fix such wage at 41*s*. 8*d*. per week. As, however, the standard family is a myth, and the assumption of its existence would push many families below the poverty line, any calculation of a minimum wage based on physiological principles must take into account the man value of each individual family.

References.

1. See figures cited by A. B. Hill, Journal of Hygiene, 1925, xxiv., 189.
2. Mottram, V. H.: Food and the Family, 1925, p. 161. (James Nisbet and Co.)
3. Pavlov, I. P., Cannon, W. B., Carlson, A. J., Rehfuss, M. E., and others.
4. Rowntree, B. S.: Poverty: A Study of Town Life, 1901. (Macmillan and Co.) Rowntree: The Human Needs of Labour, 1918. (Nelson.)
5. Bayliss, W.: Physiology of Food and Economy in Diet, 1917. (Longmans, Green and Co.)
6. Hill, A. B.: Loc. cit.
7. Mottram, V. H.: Food and the Family, 1925, p. 151.
8. Graham Lusk: Science of Nutrition, 1917. Royal Society, 1919. Food (War) Committee. Report on the Food Requirements of Men.

FOOD POISONING.

THE MALCOLM MORRIS MEMORIAL LECTURE.

THE lecture was delivered this year, by arrangement with the Chadwick trustees, at the B.M.A. House, Tavistock-square, on Oct. 17th, when Dr. W. G. SAVAGE (M.O.H. for Somerset) dealt with the subject of Food Poisoning. Sir WILLIAM COLLINS presided.

Food poisoning, Dr. Savage said, had been a question of considerable interest from the earliest days, though of late years, owing to the greater variety of foods, it had assumed a different form. The necessity for conserving food for long periods and the desire of the public to have its palate tickled with food made in different ways had helped to keep up the amount of food poisoning, despite the efforts continually being made to improve public health. The simplest type of food poisoning was that caused by a definitely poisoned animal or plant having been consumed. In this country there was not much illness caused by eating poisoned animals, but mushroom and other forms of poisoning were fairly common. A fairly simple kind was that by chemical substances which had been accidentally introduced into food, such as apples which had been sprayed with an arsenical compound. In 1922 200 people suffered from poisoning which was traced to apples having been cooked for some hours in a zinc container, the acid having dissolved sufficient of the zinc to produce the poison. Recently four members of a family partook of breast of mutton and afterwards suffered from belladonna poisoning. It was found that mixed with the sage for the stuffing were some belladonna leaves. Outbreaks of chemical poisoning, however, constituted but a very small part of the whole. Most were due to bacteria. Seventeen persons who partook of some brawn were ill, and three died, and it was discovered that the pig in question had suffered so badly from a diseased leg that it could not be walked to market. Three of the patients had eaten only the vegetables which were cooked in the same vessel.

Ptomaine Poisoning a Misnomer.

Dr. Savage said a good deal of misconception prevailed concerning ptomaine poisoning. It arose from the idea that the cause of the illness was the fact that the food was tainted or decomposed. Ptomaine poisoning was really a misnomer. Certain chemists, working on the subject, allowed food to putrefy to an objectionable degree, and were able to extract from it chemical substances, to which they gave the general name ptomaines. When these were injected (as opposed to fed) into animals violent symptoms ensued, and this was held to prove that decomposed food caused, when ingested, the poisoning known as ptomaine poisoning. Ptomaines, however, it was now clear, had nothing to do with the problem at all. In most cases of food poisoning the food itself was perfectly good physically, but poisonous bacilli had gained access to it without causing any naked-eye changes, nor alterations in the smell or taste. Many food-poisoning outbreaks were conveyed by such food as fruits which did not decompose. Usually the contamination of foods could be traced to the handling they received in dirty and unwholesome surroundings before the consumer received them. At least three-fourths of the outbreaks of food poisoning in this country were due to bacilli of the Salmonella group. Concerning this group, three points were important: (1) they multiplied with great rapidity in food, particularly during hot weather; (2) during their growth on food they did not produce in it physical changes which were discernible to the unaided eye; (3) they produced toxins in the process of growth which were very irritant. In rabbits extreme irritation of the stomach wall was evident within six hours of eating the food so contaminated. These food cases occurred at all times of the year, but, naturally, most in the hottest months, the upward curve usually commencing in April.

The Kinds of Food-Vehicle.

With regard to the kinds of food which acted as the vehicles for the Salmonella bacteria, he had been through the details of 200 outbreaks, and worked out the percentages. Thirty per cent. were due to the eating of canned foods; 7 per cent. milk, 8 per cent. milk products (mostly ice-cream and cheese), 27 per cent. made-up meats, 4 per cent. manipulated food like stuffed meat, 16 per cent. in fresh meat, 4 per cent. fruit or vegetables, 3 per cent. other foods not here mentioned. In no less than 72 per cent. the poisoning was traced to foods which had been man-handled in some way—canned foods, sausages, brawn, "faggots," chopped meat. Many of the incriminated foods were those which, having been mixed, were heated and allowed gradually to cool, brawn and ice-cream forming a large class in these. It was most probable that the contamination took place during the cooling if the surroundings were dirty and dusty. While the material was hot, any bacilli alighting on it would probably be killed off, but at subsequent stages in the cooling the temperature would be congenial, and rapid multiplication would occur. An outbreak in 1923, in which many hundreds of people we ill—though only one died—was traced to ice-cream havi cooled in a filthy place, and been sold through the stree from three hand barrows. Salmonella bacilli were isolate A very important feature about Salmonella bacilli was tha alone among microbes, their toxin was heat-resisting. T toxin could be boiled for an hour or more and yet its leth character was not disturbed.

The cases of poisoning due to the eating of canned me were of exactly similar character; their incubation peri was short—i.e., two to four hours—and the symptor were acute vomiting, diarrhœa, and acute abdominal pai The acuteness, however, seldom lasted more than 24 hou and the deaths from it were very few. When a fatal resu ensued the person was usually already the subject of sor disease such as diabetes. The mere distension of a t containing food was not a sure indication of the presen in it of poisonous gases.

Attacks of botulism were quite infrequent in this countr but not so rare in the United States. Still, at Loch Mar (Ross-shire) a bad outbreak of botulism occurred in 192 Eight people started on a fishing expedition equipped wi sandwiches containing wild duck paste preserved in gla jars. Some time after eating them the members of t party suffered from symptoms in nerves, eye, and thro and examination of scraps remaining in a glass jar reveal the *B. botulinus*. The disease was well known in Germar and in Russia was said to be on the increase, due th principally to fish. In the United States it was chie traced to preserved fish and olives, and the profession th energetically set to work to trace the disease to its sour and stamp it out.

The Question of Prevention.

With regard to the important subject of prevention, was now clear that the Salmonella bacilli were not norn denizens of the human intestine, but they had been fou in diseased animals, therefore outbreaks might start fr the eating of the flesh of diseased animals. In Germa where the system of meat-inspection was closer than ou it had been definitely proved that botulism could ar from drinking the milk of a diseased cow. It was not lik to be spread by human carriers. *B. botulinus* occur in the soil. The main preventive, of course, was care attention to sterilisation and the prevention of dust inf tion. It was essential to try to hunt out the reserv of the offending bacilli and destroy them, as in the case the anopheles in malaria; and the heat needed to dest any bacilli without prejudicing the nutritive value of food must be ascertained. Scrupulous cleanliness co not be too much insisted on. Section 12 of the Regulati applying to slaughter-houses was of much importan seeing that it prohibited the carrying on of any process those places, such, for instance, as the making of tri sausages, and pickling meat. Rats and mice must exterminated from the surroundings of food preparati He did not think the legislature exercised sufficient con over the preparation and manufacture of made-up foo there was, he contended, urgent need for the registrat of premises where such processes were carried out, w periodic inspection, carrying with it the power to close s as were not satisfactory. In a general way he would it was unwise to eat made-up food of which one kn nothing, especially bearing in mind that in most cases c taminated food did not carry on its face any evidence of fact. Unfortunately there was still a good deal of misc ception on the subject. Dr. Savage hoped that one resul this popular lecture would be an increased willingness on part of the lay public to help medical officers and others in good work for the community in which they were engage

TREATMENT OF PSORIASIS WITH THYMUS.

ANY success claimed in the treatment of psoriasis deser careful investigation. In the *Medical Journal and Re* of August 17th Dr. F. F. Ward, of New York, recomme hypodermic injections of thymus, a suggestion doubt springing originally from the work of Brock, of Hambu who has reported on the effect of irradiating the thy for this disease. The claims which Brock has put forw have not been confirmed by the experience of other work those now advanced by Dr. Ward can easily be put to test, for preparations of thymus gland for subcutaneou intramuscular injection are on the English market. Ward used a preparation made by Harrower, and inje 1 c.cm. into the buttock three times weekly. Benefit observed in a month, and cure was complete in his case in six months. In only one case did the treatm fail, and it is affirmed that no local or general reactions be feared, but the number of cases is not stated, and question of relapse is not discussed. Every dermatolo knows that injection of a staphylococcus vaccine, a mi *Bacillus coli* vaccine, boiled milk, and many other for proteins will temporarily cause involution of psoriasis les in some cases, though these effects are extremely uncerta

Schorstein Lecture

ON

CHRONIC GASTRITIS:

ITS RELATION TO ACHYLIA AND ULCER.

elivered at the London Hospital Medical College on May 20th, 1927,

BY KNUD FABER, M.D., LL.D.,

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FEW conceptions of disease have suffered such issitudes as that of gastritis. Broussais brought it the front 100 years ago as the alleged cause of arly every pathological phenomenon, and Andral d Louis considered it extremely common. The neral error was, however, to take the autopsy dings of congestion, discoloration, and softening as ns of inflammation. That these changes really re the simple results of digestion and putrefaction d been already demonstrated in 1838 by Carswell, University College, London. Yet the authority of kitansky was so great that a macroscopic diagnosis s thought quite enough, and "catarrhal inflamma- n" of the stomach—*Magenkatarrh*—was a favourite gnosis with clinicians in the middle of last century. early as 1829, Barras, in Paris, had differentiated vous gastralgia and dyspepsia from gastritis; and conception of purely functional disturbance in st patients gained more and more adherents in nce. Confusion and uncertainty reigned every- ere. While microscopy formed a basis for the dy of the lesions of other organs, such as the neys and liver, it failed with the stomach, because rapidly developing post-mortem changes precluded ninute microscopic examination of the mucosa. this reason the excellent work of Handfield es and Wilson Fox, in the middle of the century, disregarded.

When physiological examination of the stomach by ans of the stomach-tube and test-meals was oduced—on the initiative of Kussmaul and be—much important information was gained but little understood. The two outstanding disturb- es of secretion, hyperchlorhydria and anacidity, e demonstrated and erroneously elevated to the us of diseases; they ought really to have been arded in the same way as the subjective symptoms, cause of which had to be investigated in each vidual case]. When no secretory disturbance found, the diagnosis of nervous dyspepsia was le; and this term was gradually extended to ude the hyperchlorhydria and the anacidity, re no definite ulcer or cancer could be made out. eed, hyperchlorhydria was considered more a se than an effect of ulcer. Gastritis and catarrh he stomach were less and less discussed and nosed, because mucus was rarely demonstrated he stomach contents, and mucus was considered criterion of catarrhal inflammation.

pinion changed when it became possible to erve the stomach by injecting fixation fluids ediately after death. In France Hayem (circ. 8)) injected a solution of potassium bichromate the stomach, and described in detail the minute omical changes. To him gastritis was a very uent and predominant lesion in gastric pathology; he was not able, even in France, to dispel the blished opinion that functional disturbances e the most frequent. In 1900 Faber and Bloch oduced the method of injecting 10 per cent. alin into the abdomen immediately after death; is way they obtained an excellent fixation of the ach mucosa. It was soon clear that inflammatory ges were frequent and important, and at the hern Congress for Internal Medicine (1904) deavoured to restore chronic gastritis to its former eminence, especially as the cause of achylia. Lately we have gained additional information on this subject by examining specimens from resections of the stomach. Konjetzny, and his pupils in particular, have enlarged our knowledge and established the importance of pyloric gastritis.

For these reasons I consider the present time suitable to outline the main points of our present position.

It is well to emphasise at once that by the term "gastritis" we now mean something different from the "catarrhal inflammation" of earlier times. Certainly the stomach has a superficial mucus-secreting epithelial layer; but, apart from this, its mucous membrane consists of a compact layer of glands with specific secretion. Hence an inflammation of the gastric mucosa would be better compared with an inflammation of some other large glandular organ—e.g., the kidney or liver. Samuel Fenwick has already drawn such a parallel between gastritis, nephritis, and hepatitis. Anatomically, however, the stomach differs from these organs in that its glandular layer is extended over a large surface and consequently may be injured in two ways: (1) via the blood (toxic and hæmatogenous agents), as can the kidneys and liver; and (2) directly, by the effect of injurious agents on the mucous membrane. The pathological phenomena caused by the gastritis are likewise of two kinds. They are partly symptoms of insufficiency—i.e., impairment of the secretory faculty from diffuse lesions of the glandular parenchyma, and partly surface lesions, erosions, and ulcerations. This applies particularly to that form of gastritis so frequently localised in the pyloric region.

The matter may conveniently be discussed in two sections, corresponding to these two main forms of gastritis.

I. PATHOGENESIS OF ACHYLIA.

The stomach-tube showed that complete anacidity is quite frequent; it was at first thought to be due to a complete atrophy of the stomach mucosa and its glands, an anadenia to which great importance was attached.

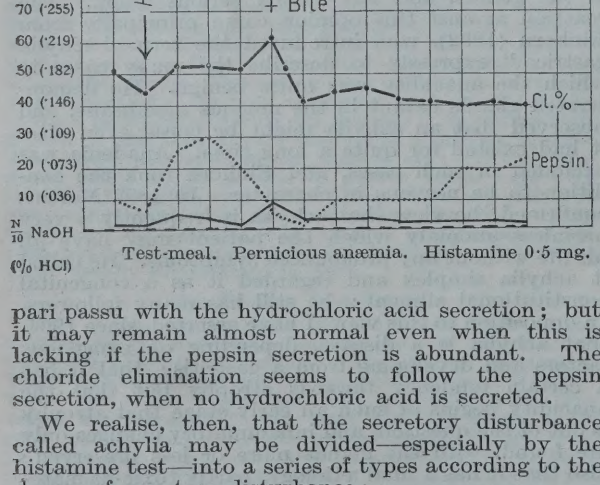
Samuel Fenwick, in 1870, was the first to demonstrate the connexion between pernicious anæmia and disease of the stomach. He laid stress on glandular atrophy as the chief characteristic; the view became general that complete anacidity was due to atrophy of the glands, and was a very serious lesion. The reaction against this opinion came principally from Einhorn (1892), who introduced the term "achylia gastrica" expressly to describe the many cases in which the anacidity was quite benign. He demonstrated glands extant in the mucous membrane, and observed that an achylia might be cured even after it had existed for quite a long time. Anadenia was excluded in such cases, and Einhorn took the condition to be nervous in character. In 1897 Martius confirmed the view that achylia is frequently a very harmless anomaly which the patient may have all his life without any pronounced symptoms. He called it achylia simplex and regarded it as a congenital constitutional ailment; he still has many followers. In opposition to this view, I have asserted, since 1904, that achylia is a disease, depending on exogenous factors and developing from a gastritis; that it has a certain tendency towards atrophy but that the anacidity begins at such an early stage that atrophy is out of the question, and inflammatory changes only are found, with the glands more or less preserved; also that it has a dual ætiology, partly toxic-hæmatogenous and partly direct injury.

Two principal considerations led Einhorn and Martius to formulate the clinical picture of nervous achylia gastrica, or the constitutional achylia simplex. One was their belief that they had found a complete cessation of gastric secretion, acid as well as peptic. The other was their discovery of this complete cessation even when the glands were anatomically preserved.

Further investigation, however, has shown that the first of these arguments does not hold good. On the contrary, even in protracted and total anacidity the secretion of pepsin hardly ever ceases altogether. The absence of pepsin, so often recorded, is due to filtration of the stomach contents before examination. The pepsin is adsorbed to the food particles and, if it is present in slight amount only, it is kept back by the filter together with the food remnants. Furthermore, an admixture of duodenal contents with the gastric juice will destroy the peptic action. In our clinic (A. Norgaard) exact analyses have always proved the presence of pepsin, although in very varying quantity, from normal to a mere trace. If under "achylia" we include cases showing no free acid and a low total acidity after Ewald's test, they can be grouped according to the degree of secretory disturbance. This has been particularly obvious since the introduction of fractional analysis, which shows that many cases have faint and delayed acid secretion, although by Ewald's test-meal they would be diagnosed as achylia. The frequency of this finding depends largely on the test-meal given. With oatmeal gruel, as at Guy's Hospital, or alcohol, as in Germany, the delayed faint secretion is seen less often than with crushed cracker. In the injection of histamine we have a new diagnostic method, which gives rise to as marked a secretion as the cracker test-meal and a more intense one than the other two meals. "False achylia," therefore, is more frequently found by this method than by using oatmeal gruel or alcohol.

The various forms of achylia are further differentiated by estimating the pepsin secretion. In some cases it remains almost unchanged, in spite of a total anacidity; in other cases it is lowered considerably; but, as mentioned, it is hardly ever completely interrupted, even in an old achylia with pernicious anæmia (Figs. 1 and 2). The total chloride elimination, after histamine injections or the alcohol test, varies similarly. Normally the amount increases

FIG. 1.



Test-meal. Pernicious anæmia. Histamine 0·5 mg.

pari passu with the hydrochloric acid secretion; but it may remain almost normal even when this is lacking if the pepsin secretion is abundant. The chloride elimination seems to follow the pepsin secretion, when no hydrochloric acid is secreted.

We realise, then, that the secretory disturbance called achylia may be divided—especially by the histamine test—into a series of types according to the degree of secretory disturbance:—

1. False achylia in which—on fractional analysis—we find a scant and tardy secretion of hydrochloric acid.

2. True total anacidity, but with preserved pepsin secretion and chloride elimination.

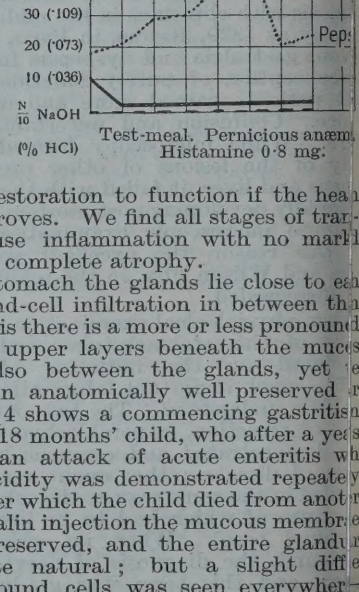
3. True anacidity with more or less impairment of the pepsin and chloride production. (Constant complete cessation of all secretion was never observed by us when the test for pepsin was carried out on the unfiltered fluid.)

Such differences in degree of functional disturbanc do not fit in well with the conception of a total achyli from defective innervation, or from a constitution congenital deficiency of secretion They correspon much better with the picture of an organic lesion different stages. In those cases of temporary nervou cessation of secretion which are sometimes shown b Ewald's test, it seems to be the rule that a histamir injection and subsequent fractional withdrawal giv normal curves of acid secretion.

Anatomical Investigation.

Similar results are shown by anatomical examin tion of the stomachs of patients with achylia. By t fixation method mentioned we have been able to stu these anatomical changes in well-fixed specimens. We find that a complete atrophy of the mucous membrane occurs exceptionally in the most advanced cases as an end-result of the gastritis. Usually its anatomical development proceeds slowly; and there may be a complete anacidity for a long time, though the glands of the mucous membrane are still intact and apparently capable of restoration to function if the hea of the mucosa improves. We find all stages of trar tion, from a diffuse inflammation with no mark glandular lesion to complete atrophy.

FIG. 2.



Test-meal. Pernicious anæm. Histamine 0·8 mg.

In the normal stomach the glands lie close to ea other with no round-cell infiltration in between th (Fig. 3). In gastritis there is a more or less pronoun infiltration of the upper layers beneath the muc epithelium and also between the glands, yet glands may remain anatomically well preserved a long time. Fig. 4 shows a commencing gastritis the stomach of an 18 months' child, who after a ye good health had an attack of acute enteritis wh achylia. The anacidity was demonstrated repeate for six months, after which the child died from anot cause. After formalin injection the mucous membr was found well preserved, and the entire glandu layer looked quite natural; but a slight diff infiltration with round cells was seen everywher a mild pangastritis. Fig. 5 shows a rather fr gastritis with achylia in a young girl who d symptoms for about six months. The glands here well preserved.

As the inflammation progresses, the glands be to show signs of injury (Figs. 6 and 7). They bec less numerous and appear separated from each ot by inflammatory products; they then atrophy u they become mere vestiges, finally disappea altogether (Fig. 8). The mucous membrane t consists of granulation tissue covered by the gas surface epithelium, a complete "anadenia." So times other changes are seen. The follicle-like ma of round cells may develop into typical lymp follicles, resulting in a "follicular gastritis." other cases cysts form in the degenerating glan occasionally this may be the predominant feat Not uncommonly the surface epithelium of stomach is converted into intestinal epitheli characterised in particular by goblet cells with mu such as are never found in the normal stom Occasionally there may even be typical glands Lieberkühn with Paneth cells.

Thus there is gradual transition from the slig injured stomach to the stomach showing ma

natomical changes with destruction of the entire ecretory apparatus. The stage of complete atrophy reached only when the gastritis has persisted for a long time, as in elderly or middle-aged individuals who have probably suffered from achylia for a good many years.

That the glands themselves may at times be anatomically intact, although their secretion has ceased, is illustrated in Fig. 9. The patient had had symptoms of cancer for six months, and had a complete achylia. In a piece of mucous membrane, removed at operation, the glands were so well preserved that it was possible to demonstrate secretory channels, Altmann's granules, &c.

FIG. 3.

Normal mucous membrane of the stomach. From a child with meningitis.

FIG. 4.

chylia in a child 1½ years old. Commencing gastritis.

FIG. 5.

Gastritis with achylia in a girl aged 19.

Ætiology of Achylia.

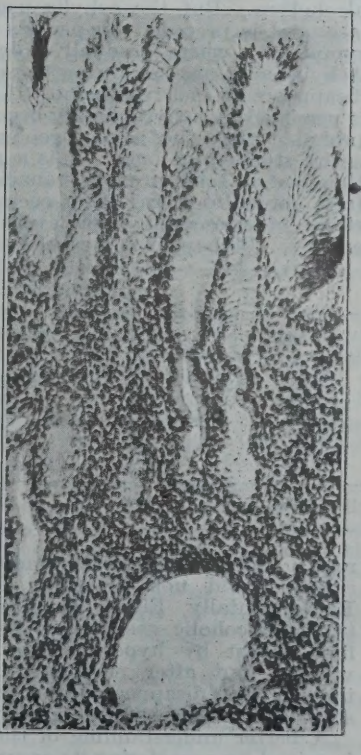
Gastritis nowadays has been generally accepted as the cause of a certain number of cases of achylia; but many authorities still hold that the so-called "constitutional achylia" is fairly common. Two arguments are always cited in favour of this view: (1) An achylia of no definite ætiological importance is frequently met with in patients of all ages who give no history of alcohol or other strongly irritating food. (2) Achylia may exist for a long time without any stomach symptoms.

The dual ætiology of gastritis must be remembered in considering the former of these. Direct irritation was formerly considered the sole cause of gastritis, and the hæmatogenous factor was overlooked. The hæmatogenous factor can best be demonstrated in children, in whom anacidity is quite common. Some exogenous cause is nearly always evident — e.g., parenteral febrile

FIG. 6.

Gastritis with achylia in a man 40 years old.

FIG. 7.



Chronic alcoholic gastritis with achylia in a man aged 51. Commencing atrophy of the glands, and some cysts.

diseases and intestinal lesions, especially infectious enteritis. In Copenhagen, especially at Bloch's pediatric clinic, it was found that an achylia very frequently developed during and after acute infectious diseases such as influenza, tonsillitis, pneumonia, bronchitis, and especially after infectious enteritis. In several cases a normal secretion had been demonstrated before the disease, and a lowered secretion for a long time after the disease. Out of 64 infants with intestinal lesions Bloch found a lowered secretion in about half (33); in 15 a complete anacidity persisted for weeks or up to 11 months. At autopsy on children dead from diphtheria and measles Jerusalem found anatomical signs of acute gastritis; and by intravenous injection of diphtheria toxin Einar Thomsen, in Copenhagen, has been able to produce a violent acute gastritis with complete achylia. Thus hæmatogenous toxic gastritis with anacidity is frequent in children. It is usually transient, but is occasionally very protracted, perhaps persisting for life. The hypothesis of a constitutional achylia postulates a certain number of cases of achylia in perfectly healthy infants; 127 infants examined all showed acid secretion. In adults, in the same manner, an achylia develops and sometimes persists after acute infections of the intestines, such as dysentery, typhoid, and paratyphoid fevers. Achylia is very frequent in pulmonary tuberculosis, occurring, as is well known, in 33 per cent. of the cases. Finally, a diminution of secretion, amounting at times to achylia, is seen in the toxæmias of pregnancy, especially eclampsia.

These ætiological factors explain the otherwise mysterious origin of various forms of achylia. The cause is often quite remote; it may be traced to childhood, or may remain unrecognised. The absence of conspicuous causative factors is no argument in favour of achylia being a constitutional congenital lesion.

In contrast to the hæmatogenous toxic ætiology of gastritis is the well-known direct irritation of the stomach mucosa by poorly prepared food, alcohol, certain drugs, &c. Alcoholic gastritis is the typical example. Vogelius found achylia in 50–60 per cent. of cases with advanced chronic alcoholism. But the achylia usually develops quite late, and is preceded by periods of marked stomach symptoms with gradually decreasing secretion. Achylia may appear during these exacerbations, but disappears on diet treatment. If the abuse of alcohol is persisted in, achylia finally becomes constant. It is probable that the hæmatogenous form attacks the entire stomach at once; it is a pangastritis, and for this reason soon produces anacidity. The gastritis from direct food irritation seems to have a longer stage of preserved, and eventually of increased, acidity. Perhaps it is localised at first in the pyloric

TABLE I.

Age.	Achylia.	True achylia.	False achylia.
0–20	16	7	9
20–29	34	28	6
30–39	71	51	20
40–49	110	81	29
50–59	116	95	21
60–69	48	40	8
70—	5	4	1
Total ..	400	306	94

region and later expands gradually over the entire corpus; and not till then does secretion cease. Experimentally Einar Thomsen has produced a typical alcoholic gastritis in dogs. The lesion was first shown by hypersecretion and increased acid values; but after protracted ingestion of alcohol the secretion disappeared and the mucous membrane showed a diffuse extreme gastritis.

A better understanding of the ætiology of achylia is gained by considering its occurrence at the different periods of life. It is quite frequent in children; but in them the secretion usually, if not always, seems to return. In adults its frequency increases rapid with advancing age; in old people it is so freque that Dedichen, in Oslo, found it in 66 per cent. apparently healthy people of 67–92 years. Meule gracht, in Copenhagen, found it in 75 per cent. individuals past 70. In both instances the stu was made on inmates of Old Folks' Homes, w presumably had taken poor care of their teeth a had probably often taken coarse food and alcoh The age-grouping of 400 cases of achylia from o medical clinic was as shown in Table I.

The greatest number occurs in the decade 50–6 and this holds good also, when all cases of fa achylia are separated out, including those whose to acidity with phenolphthalein—after the ordina Ewald's test-meal—was 20 or more. The maximu of false achylia occurs at an earlier date, in the deca 40–50.

A clearer understanding is gained by compari the age-grouping of our 306 cases of achylia wi the age-grouping of 1000 patients admitted consec tively to the hospital. (Table II.)

TABLE II.

Age.	Patients admitted.	Achylia.	Cases of achylia proportion to ag
0–20	102	7	6·9 per cent
20–29	224	28	12·5 „
30–39	221	51	23·0 „
40–49	190	81	42·6 „
50–59	182	95	52·0 „
60–69	78	40	51·0 „
70—	3	4	133·0 „
Total	1000	306	—

The markedly increased frequency of achy in the aged does not support the hypothesis o congenital constitutional cause, but is consist with the anatomical pictures. Throughout life stomach is exposed to injurious agents, either direc or indirectly via the blood. This aggravates existing gastritis, which finally extends over the en stomach and involves such great changes of mucous membrane that achylia is established. older the individual, the more rarely achylia i temporary phenomenon, and the more freque do the anatomical changes terminate in comp atrophy. Partial false achylia is also relatively n frequent in younger patients.

Symptoms of Achylia.

The other argument in favour of a constituti achylia is the relative frequency with which it ex without symptoms. The symptoms of patients v achylia are of two kinds. In one group they partly very serious, and seem to be directly relate the acid insufficiency. They are indirect, inasmuc they apparently originate from the changed condit within the intestinal tract, when gastric secre and subsequent peptic digestion and food disinfec come to an end. As is well known, these sympt are frequent diarrhœa, anæmia, ending as pernic anæmia, combined toxic sclerosis of the Frequently the grave sequelæ of achylia form terminal phase of gastritis, in the same way uræmia forms the end-result of a chronic neph which otherwise, perhaps, gave rise to very symptoms. These, however, are not the sympt whose absence is used as an argument for constituti achylia.

The symptoms missing in some patients with ac are the proper dyspeptic symptoms, as we know th for instance, in alcoholic gastritis. In this condi however, it is well known that pronounced subje symptoms can disappear with the discontinuan alcohol, although a solidly established achylia persist for life, without giving rise to any symp whatever. This is even more common in hæmatoge achylia. The real dyspeptic phenomena—cardi vomiting, eructations, &c., and increased mucus pr

tion—seem to depend more on the inflammation itself than on the lack of secretion. When the gastritis is at rest, there may be an entire lack of symptoms, even though achylia persists. Gastric digestion is replaced by pancreatic digestion, but all the anatomical signs of diffuse gastritis are still present. An achylia acquired in early life can be present for many years without giving symptoms. This is most often seen in hæmatogenous gastritis.

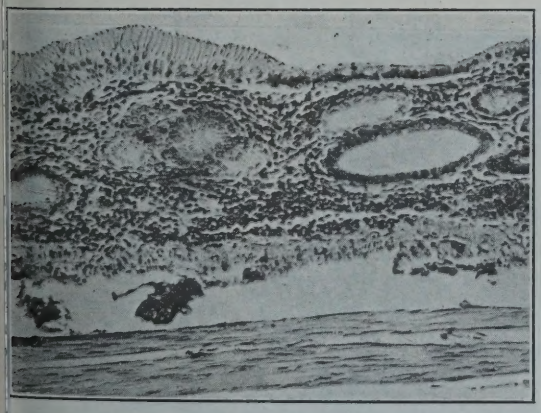
Neither deficient ætiology nor lack of symptoms warrant us in assuming the existence of a congenital constitutional achylia. All the cases are explained most readily and naturally by taking exogenous gastritis as the cause. This does not exclude the possibility that some individuals are more disposed to the disease than others, but as yet there is no material to warrant the conclusion that it is hereditary or familial as, for instance, polydactylism, Huntington's chorea, and the like. It is only natural that such a common disease as achylia should be found in several members of the same family, but this is no proof of heredity. At most it is a sign of increased susceptibility.

II. Acid Gastritis, Pylorus Gastritis.

Since chronic achylia is usually due to gastritis, it is clear that the great significance once attached to this lesion was fully justified. Indeed, the clinical importance of the lesion extends far beyond the achylia.

Increased secretion, hyperchlorhydria, has fared similarly to achylia. At first various authors, especially Korczynski and Jaworski, claimed that an acid gastritis was the cause of the hypersecretion; and Hayem described a special parenchymatous acid gastritis, but its anatomical characteristics could not be upheld. Later the doctrine of hyperchlorhydria as an independent functional, essentially nervous, ailment became the predominant view for a long time. Then it was noticed how often a painful hyperchlorhydria and Reichmann's symptom-complex coexisted with ulcer of the stomach and

FIG. 8.

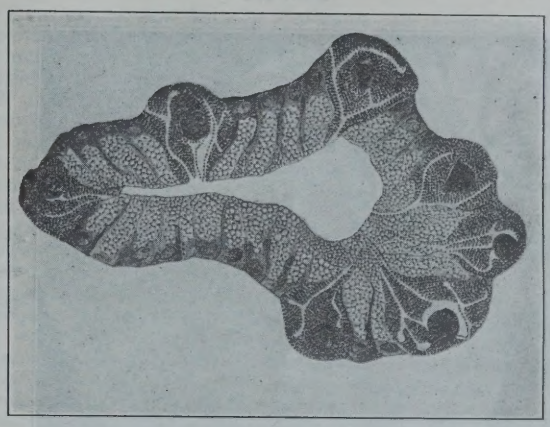


Complete atrophy of the mucous membrane of the stomach. No secreting glands. From a man, 42 years old, who had had gastric symptoms for ten years.

duodenum, and they were taken as caused by the ulcers. That gastritis might be the cause of hyperchlorhydria was less and less thought of.

At the outset it seems probable that a gastritis may exist with the acid secretion intact or increased. We have already mentioned that in many patients the stage of gastritis with complete achylia must have been preceded by a stage, possibly of long duration, in which the acid secretion continued. In alcoholic gastritis a protracted stage of intact or increased acid secretion may often be demonstrated clinically as well as experimentally, and something similar may be presumed to occur in other irritation-gastrites. It is undecided, however, how often a hyperchlorhydria can be referred to a gastritis. The reason for an intact secretion in gastritis may be twofold: the lesion of the mucous membrane may be so mild that no insufficiency ensues, or, more commonly, only a part of the mucous membrane has been attacked. The pyloric region in particular is very often the site of a marked gastritis, while the mucous membrane of the fundus or corpus is but slightly attacked, if at all, and the gastritis may be limited in this way for years, even decades. It is principally

FIG. 9.



Gastric gland, with well-preserved acid cells, in a case of cancer of the stomach which had given symptoms for half a year. Complete anacidity. (Altmann's stain. Einar Thomsen del.)

by the systematic examination of the pyloric part of the stomach after surgical resection that attention has been called to this pyloric gastritis and to its great frequency and great clinical importance. It is only natural that irritation from food—mechanical, toxic, or infectious—should assert itself most effectively in the pyloric region. Here the stomach contents are pressed most forcibly against the wall in a purely mechanical way, while the stomach is working in the effort to pump its contents through the pyloric channel.

Such a localised pyloric gastritis contrasts with the pangastritis of hæmatogenous origin ætiologically as well as symptomatically and anatomically, and deserves most careful attention. It is a juxtapyloric lesion, limited for a long time to the antrum pylori of the stomach and the adjacent part of the duodenum; and its symptoms may be explained by its localisation just as they are conditioned largely by the function of the pylorus.

There is a symptom complex which the Frenchmen Soupault and Mathieu named *syndrome pylorique*. Later on Moynihan gave its principal symptom the name of "hunger pains," which are characteristic of juxtapyloric ulceration, and which he took to be chiefly a symptom of duodenal ulcer. The principal feature of the pyloric syndrome is the late pains or "hunger pains" which set in when the stomach is nearly emptied and persist till more food is taken. Next in importance is increased acidity and, especially, the so-called digestive hypersecretion, which manifests itself after a test-meal in the copious contents of the stomach and, finally, delayed emptying, more or less a gastric stasis. These symptoms are now regarded as conclusive for the diagnosis of chronic ulcer, particularly when larger or smaller hæmorrhages supervene.

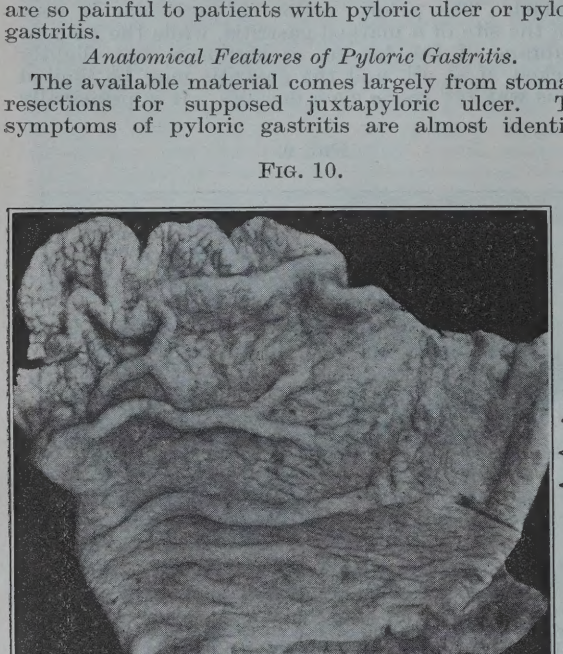
Lately, however, it has become more and more evident that our view must undergo some modification. Since Konjetzny, different clinics have published a steadily increasing number of observations showing that these characteristic symptoms are found not only in juxtapyloric ulcer but also in juxtapyloric

gastritis, especially when the gastritis is complicated by small erosions. The explanation is obvious, for the symptoms must be interpreted as signs of lesions in this particular region. Carlsson demonstrated that periodical contractions take place in the empty stomach. It is these contractions which are so painful to patients with pyloric ulcer or pyloric gastritis.

Anatomical Features of Pyloric Gastritis.

The available material comes largely from stomach resections for supposed juxtapyloric ulcer. The symptoms of pyloric gastritis are almost identical

FIG. 10.



Pyloric part of the stomach, showing gastritis and small erosions. The arrows point to the three erosions.

with those of pyloric ulcer, and a gastro-enterostomy will relieve them in both cases. In the absence of real ulcer, macroscopic examinations of such specimens of the pyloric region frequently shows no change, or at most an accentuation of the mammillated condition of the surface. Many cases, however, show scattered tiny ulcerations or erosions of the mucous membrane (Fig. 10). Frequently these are made more conspicuous by a surrounding elevated fold of mucosa. Sometimes they are very numerous and give rise to the characteristic picture of an ulcerative gastritis. Microscopically the mucosa shows the usual gastric changes: intense infiltration with round cells, numerous large accumulations of cells, and greater or lesser degeneration of the glands, and eventually cystic dilatation. The small erosions or acute ulcers of mucosa are particularly characteristic. The macroscopic ones involve most of the mucosa and are surrounded by densely infiltrated tissue. Some microscopic erosions of the mucous membrane are also found (Fig. 11). These inflammatory features are seen in the pyloric part of the duodenum as well as in the stomach. When the specimens show chronic ulcers, these are not as simple as is often thought. In fresh material the ulcers are more intensely inflamed, and the inflammatory phenomena are not limited to the immediate surroundings but extend over the entire mucosa of the part. Thus the chronic ulcer is surrounded by a marked pyloric gastritis, and sometimes small erosions are seen besides. The conclusion is unavoidable that one or several small erosions in ulcerative gastritis are gradually converted into the typical chronic ulcer, presumably by the joint action of the corroding gastric juice and the mechanical effect of the food passing through the pyloric channel.

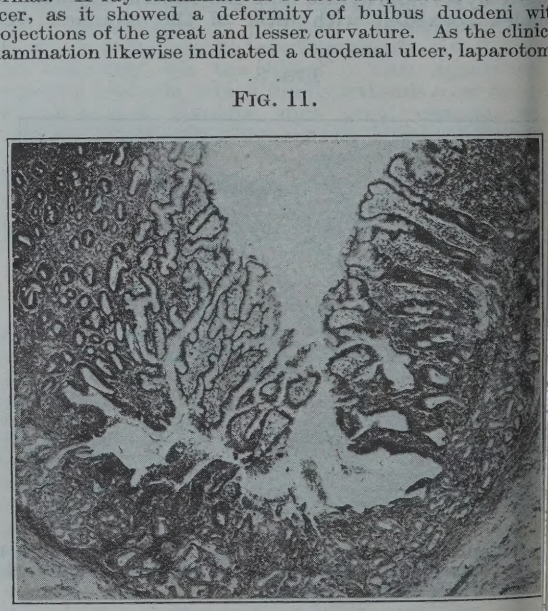
By way of clinical illustration of this lesion I mention two cases, each of which is very enlightening.

Case 1 is that of a young man, aged 25, who for ten years had had pronounced gastric symptoms and had four times been subjected to severe dietetic treatment for ulcer, each time with good but transitory result. The symptoms were hunger pains, appearing about one and a half hours after meals and lasting till the next meal, which relieved them; frequent vomiting; and a dozen small hæmatemeses, rarely more than 1–2 tablespoonfuls. At the hospital frequent occult bleedings in fæces, once melæna. Hyperchlorhydria was demonstrated repeatedly; on Ewald's test-meal, free acid 93, total acidity 106. Fractional withdrawal likewise showed high figures, rapid emptying of food, protracted marked secretion of acid, which still persisted four hours after, and bile influx after two and a half hours. X ray showed a doubtful deformity of bulbus duodeni. The diagnosis seemed clear, and Prof. Schaldemose did a resection of the pyloric part of the stomach and duodenum.

Examination of resected part revealed:—Macroscopical: *No chronic ulcus simplex*, but in the antrum of stomach three to four diminutive erosions, which did not penetrate the mucous membrane and were outlined by slightly elevated edges (Fig. 10). Microscopical: Extremely intense inflammation of the entire resected area and small breaks in the continuity of mucosa with strongly infiltrated surrounding (Fig. 11). In other words, *gastritis* with erosions. The disease had lasted for ten years and had very definite classical symptoms. The small erosions cannot be considered chronic; they are more transitory and changing manifestations of the inflammation. The fundamental (primary) lesion is a marked chronic gastritis, localised to the pyloric portion of the stomach.

Case 2 is that of a man, aged 35, who since his eighteenth year—that is for 17 years—has had periodic attacks of cardialgia, typical hunger pains two hours after meals and at night, relieved by eating. A hæmorrhage in 1924, both hæmatemesis and melæna, wherefore ulcer treatment at hospital. The pains were temporarily relieved but returned in periods. In 1926 confinement to bed and dietetic treatment. In January, 1927, violent pains and marked melæna together with minor hæmatemeses. Admitted to hospital in poor condition; hæmoglobin 72 per cent. The bleeding ceased under ulcer treatment, and the symptoms disappeared save for some delayed pains after light diet. The gastric secretion had previously shown hyperacidity; now it became normal. X ray examinations roused suspicion of duodenal ulcer, as it showed a deformity of bulbus duodeni with projections of the great and lesser curvature. As the clinical examination likewise indicated a duodenal ulcer, laparotomy

FIG. 11.



One of the small erosions seen in Fig. 10.

was done; and as no definite ulcer could be made out the pyloric part of stomach and duodenum were resected. No ulcer was found. In the duodenum there were two pockets resembling diverticula, and small scars between. Unfortunately, death from embolism took place one week later. The other part of the stomach revealed no ulcer. Microscopic examination showed diffuse inflammation of stomach as well as duodenum, but limited to the pyloric region (Fig. 12). The mucous membrane of the corpus was normal, without indication of inflammation.

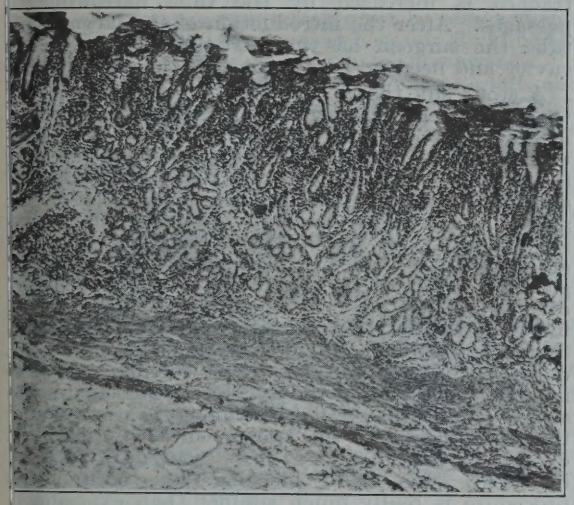
Here we have another case in which the diagnosis of chronic duodenal ulcer seemed certain, and where

he anatomical examination showed no ulcer but a ery marked gastritis localised to the pyloric region. he repeated profuse hæmorrhages and the small cars show that there has been ulceration; but the lcers must have been small and quickly healed acute ulcers." The fundamental (primary) gastritis, n the other hand, has persisted for decades.

CONCLUSIONS.

We realise, then, that the very oldest hypothesis, dvanced by Cruveilhier, is once more coming in the ont; that it is in the gastritis we must seek the rigin of the chronic ulcer; and that the frequent lcerative pyloric gastritis is the cause of the juxta-yloric ulcers. Gastritis is likely to assume that

FIG. 12.



Pyloric gastritis.

dominant position in the pathology of the omach which has been assigned to it from time to me in the past, only to be subordinated to the ory of nervous functional disturbance and chronic mple ulcer.

The whole development of our pathological views this field is a striking illustration of the steady and st important scientific work done in the clinic. e method has ever been that of correlating clinical mptoms with anatomical changes and physiological nctional disturbances. But this progress has been ssible only by long and steady study of patients. e must employ the same exactness in our investiga-ns as do the theoretical explorers; but the bedside st ever be our principal field of research. It oves us humbly to submit to the manifestations of ture in our patients and to seek to grasp the many tures they present. In this manner only do we vance towards our goal, to understand nature and n endeavour to control her.

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Clinical Lecture

ON THE TREATMENT OF

CANCER OF THE TONGUE.

Delivered at the Post-Graduate Meeting at St. Mary's Hospital, London, on Oct. 3rd, 1927,

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CANCER of the tongue deserves our attention in the first place because of its very rapid course. There is no organ in which the disease is anything like as rapidly fatal as it is in the tongue. Butlin gives 12 months as the average time of survival of the unoperated cases. For the breast the average time of survival of the unoperated case is nearly three times that length. Then in the tongue it is the primary growth, as a rule, that brings about the death of the patient. Such cases have an intensely painful ending. One is able to forget for a time disease in a breast, a gall-bladder, or a uterus, but at no time can one be unmindful of a sore tongue. The patient must constantly breathe and swallow, and the pain therefore is always there. And, finally, there is something which recommends a study of this disease to our close attention, and that is the very poor surgical results we have obtained up to the present time. There is no site in the body in which cancer regularly appears which gives us worse results. Now our methods of treatment have advanced so far, that in future we are going to get almost as good results in the case of the tongue as we do in the case of the breast.

PRECURSORS OF CANCER.

We all recognise that leucoplakia is often a precursor of cancer. Now it does not matter what is the cause of leucoplakia, be it smoking, alcohol, or syphilis, the effect is the same. It used to be fashionable, and perhaps it still is, to say that syphilis is a precursor of cancer. It is not, but its effects on the mucous membrane, the fibrosis after gummata, and the other changes it brings about certainly predispose to the disease, it matters not what is their cause, and that is the only relation syphilis bears to cancer. If the leucoplakia is slight it can be ignored to a very great extent, all we can do is to keep an eye upon it; if, on the other hand, it is severe we can carry out one of the many excellent procedures for the removal of the affected mucous membrane.

Apart from the rarer ways in which cancer of the tongue may start, we can say that the commencement is always in a chronic ulcer, fissure, or sore of some sort, or as a wart, or as a nodule under the mucous membrane. Now we know that the sore and the wart to begin with are in almost every case innocent at first, but they may at any moment develop that peculiar growth of epithelium which determines their cancerous nature. Immediate excision of a wart will prevent cancer developing; similar treatment in any case where there is any sort of a sore on the tongue which shows the slightest sign of becoming chronic, or of not healing on the removal of any visible cause such as a sharp or septic tooth. It can be done under a local anæsthetic, and these little wounds will heal at once. It is always advisable to have the piece of tissue carefully examined by the pathologist. This seems quite a simple and obvious procedure, but it is one which is seldom carried out, and the removal of a chronic sore from the tongue is a very rare occurrence.

SPREAD.

Now once the cancer has started, spread is very rapid. The spread takes place locally and to the glands. Locally the spread is peculiar as it is not apparent. The ulcer may remain quite small, but if sections of the tongue be cut it will be found that the

spread is into the depths of the tongue, down the lymphatics which run along the muscular fibres towards the hyoid bone. Superficially the spread is so very limited ordinarily, we say that if we keep half an inch of sound tissue between the knife and the ulcer that is sufficient, but hitherto we have never laid stress upon the depth we must go, and in depth we must go as far as we can. It is the failure to realise this that is the cause of the local recurrences within the mouth.

Spread to the glands takes place at a very early period, far earlier than in the case of the breast. Why this is so, is apparent when you think of the two organs.

Cancer affects the breast at a time when the organ is past its period of activity; it is an extinct and resting organ; it lies between no muscles which could press upon it and drive out the lymph, which carry away the carcinomatous cells. Infection even of the main axillary glands is therefore comparatively late. In the tongue the condition of things is quite otherwise. There is no period of life in which the organ is past work; it is always actively used for speaking, mastication, and swallowing. It is a purely muscular organ, and each contraction pumps the cells along the lymph channels to the glands, so that their infection must be very early brought about. Not only so, but as the net work of lymphatics is so ample in the neck, the infection is often very widespread at an early date.

OPERATIVE TREATMENT.

In dealing with the treatment of cancer of the tongue these things have to be taken into consideration. The ordinarily performed operation is badly planned; inadequate to the last degree, its results are disheartening; it should be given up.

In the case of a bad leak of water the first thing to do is to turn off the water at the main and then deal with the water which has escaped. In cancer we want to remove the source from which the cancer cells are flowing; we therefore have to deal with the primary growth first; later we can deal with the glands into which the cells have escaped. I state this because lately it has become more and more the fashion to deal with the glands first and then to remove the growth at a later date. Now if you remove the glands first the lymph flows from the cancer just the same, and in the weeks which intervene between the two operations the cells of the growth are carried by devious passages to other glands on the same and on opposite sides of the neck.

The only reason why the operation is done in the wrong order is that intra-oral operations are most distressing, inflammation in a part such as the mouth which cannot be kept at rest is very painful, and the whole procedure is so trying that one is afraid that the patient will not face the second and equally necessary operation of removal of the glands. Most of this unpleasantness can, however, be done away with, as I shall show, so that even this reason no longer carries weight.

If the operation is to be done in two stages the neck should be left severely alone, and therefore ligature of the lingual artery is to be avoided; it is an obsolete procedure never needed, and should no longer be performed. The incision in the neck and the clearing away of a few glands round the carotid is not the radical clearance of the glands which modern thought demands, and merely lays down fibrous tissue which renders subsequent dissection very difficult. A radical clearance of the glands with the certainty of infection of the area from the mouth is not to be thought of.

The First Operation.

At the first operation, therefore, all that is to be done is to remove the growth, and this should be done in the following manner. I shall omit the preliminaries which it is necessary to follow, and the measures taken to reduce oral sepsis.

The patient is anæsthetised in the ordinary way. A small stab wound is then made through the crico-thyroid membrane and a laryngotomy tube inserted and the anæsthetic is subsequently given through this. The smaller the stab wound and the tighter that the tube fits the better; the pressure will prevent all bleeding. On no account should intratracheal ether be given. The danger of the operation being broncho-pneumonia, what better method can be thought of for producing it than rubbing a catheter over a septic cancerous ulcer and then passing it down into the trachea? The introduction of the tube, too, is not always so easy in a tongue which cannot be drawn freely from the mouth, and considerable bleeding from the ulcer may occur in its introduction. The tube is often inserted before the patient is deeply under, and struggling on the part of an old and often broken-down patient is not the best preliminary to a trying operation. Moreover, the pharynx cannot be plugged, and the danger of fluids passing into the trachea is increased by the tube narrowing the passages. After the introduction of the laryngotomy tube the surgeon has unrestricted use of the oral cavity and need no longer consider the anæsthetist.

A stout silk thread is placed through the front of the tongue and another can, if necessary, be placed behind the growth and used as tractors. The pharynx is then plugged with marine sponges to which a string is attached; no fluids can then pass into the pharynx and the danger of broncho-pneumonia is past. The growth, as we have already said, does not spread superficially, and half to three-quarters of an inch are considered sufficient distance to keep from the growth. The mucous membrane below the growth is divided as far back at the anterior pillar of the fauces and the stylo-glossus muscles which constitute that pillar exposed and cut through. This having been done, the tongue can be drawn further out of the mouth. This will put the hyoglossus muscle upon the stretch. A director or flat instrument is inserted under this structure and the muscle divided. This will expose the lingual artery; it is secured, divided, and ligatured. No more bleeding can occur. The procedure is really much simpler than exposing the artery in the neck. Definite flaps of mucous membrane are then fashioned so as to leave sufficient to cover the stump of the tongue, and the growth is removed bearing in mind the depth to which the growth may have penetrated.

Having stayed all bleeding the flaps of mucous membrane are sewn with catgut over the raw surface which as a rule can be covered completely. The sponges are removed from the pharynx, the patient allowed to come round sufficiently from the anæsthetic to enable him to cough—a most important point—as after the coughing reflex is established and nothing is likely to pass down the wrong way. For this reason morphia should be avoided as it dulls the coughing reflex. The laryngotomy tube can then be removed and a small dressing placed over the tiny wound. The patient lies in bed half on his face, so that saliva will flow naturally out of his mouth, and on no account will any swabbing of the interior of the mouth be allowed for fear of disturbing the stitches. For the first few days plentiful rectal saline should be given, but I do not need to go into the nursing details with you.

The recovery is most rapid; there is no raw ulcerating surface in the mouth to heal, there is little inflammation, and consequently little pain. In fact the operation has been robbed of most of its unpleasant features.

That, shortly, is the operation, and I need not elaborate it to point out that both sides of the tongue can be removed at the same time. I must emphasise, however, that the tongue should never be split in bilateral removal. You are removing it because both sides are affected; if you split it as used to be recommended, you must cut through the cancerous area and cells will escape.

The Second Operation.

Two to three weeks later the glands of the neck are attacked. During those weeks nothing is to be

feared from them; if badly infected they are blocked and no lymph is passing through, in any case the source from which the lymph flows has been removed and no fresh cells have been implanted. But for the continual growth of the cells they are as they were at the time the tongue was dealt with.

An incision is made down the whole length of the anterior edge of the sterno-mastoid muscle. From the middle of this incision a second one passes up to beneath the point of the chin. Further incisions can later be made at each end if needed.

The first incision is deepened so as to expose the external carotid artery which is secured and divided between two ligatures. This greatly simplifies the procedure. The whole of the gland bearing fascia at the side of the neck, together with the submaxillary gland and the sterno-mastoid muscle, is removed. If the glands are badly infected they will be adherent to the internal jugular vein which must be removed too. In this case the dissection is best begun in dividing the sterno-mastoid above and working downwards. If the glands are not adherent, the vein can be left, and it does not matter at which end one begins. In deep dissections of the neck high up much more room may be obtained if the angle of the jaw is sawn through and removed. Handling of the glands should be carefully avoided. They should not be touched, nor held, as pinching, squeezing with forceps, or dividing with the knife favour the escape of cancerous cells which would be sown on the raw surfaces and so cause recurrence. All the glands from the anterior and most of the posterior triangles can thus be removed.

I am not in favour of block dissection of both sides of the neck. It is, in my opinion, sufficient to remove those from the affected side and to watch the opposite side. The glands become infected direct from the tongue, one becomes infected and blocked, and as no further lymph flows through it no cells can be carried from it. The lymph being deflected through other glands, other glands become infected, but all directly from the original growth, not from previously infected glands. It is sufficient, therefore, to watch the opposite side and examine it systematically once a month and deal with infection if it arises.

That, shortly, is the modern method of dealing with cancer of the tongue by means of operation.

APPLICATION OF RADIUM.

Of late, however, another method of treatment has been used with great success, and that is the treatment of primary growth by radium.

The method of procedure is as follows: Novocaine is injected into the lingual nerve on both sides as it lies under the mucous membrane on the inner side of the jaw. This is a simple and satisfactory proceeding. There are very many ways of applying radium. Here are the tiny glass needles containing emanations which are inserted and left in permanently. There are the fairly large doses of radium enclosed in tubes of platinum to screen them, which are left in for perhaps 24 hours; and there are the small needles of platinum containing doses of 0·2 mg. which are inserted and left in for a week or more. Of these methods the last seems to answer in much the most satisfactory manner. It is the method which has been used by Prof. Regaud in Paris for some years, and anyone who has seen his results will be convinced of its merit. The needles can be an inch or an inch and a half or two inches long. Each needle is threaded with a piece of fine wire and a piece of Japanese silkworm-gut. They should be inserted at about half inch intervals round the growth and should be pushed straight in towards the root of the tongue. When driven home the silkworm-gut is threaded on a needle and a stitch put through the mucous membrane of the tongue, tied, and cut short. Each needle is treated in the same manner. The wire threads are twisted up and threaded through a thin piece of rubber tubing which is brought out of the mouth and secured to the cheek with plaster. In this way the needles are doubly anchored and should be examined daily to see that they are not working loose. Each needle is worth some £300 to £400, so that precautions are necessary.

The needles are left in for at least a week and are then removed. A little inflammation is seen in a few days and usually small areas of necrosis appear where each needle was inserted. The ulcer shrinks and its surface becomes covered with a white slough, and soon begins to heal over. The induration and stiffness of the tongue begin to disappear, and in successful cases the whole growth may have dissolved in five to six weeks. If the dose has not been sufficient a second may be needed, but will have less effect than the first dose. Overdoses may produce a most persistent form of tissue necrosis and transform the carcinomatous ulcer into a most intractable radium sore which may be painful. Necrosis of part of the jaw sometimes takes place, and the patient should be warned that his moustache will fall off, at all events on that side; this will save him the trouble of shaving for some time.

Attempts have been made to destroy the cancerous glands of the neck by radium either inserted or applied over certain coverings to the outer side of the neck. The glands can be made to get smaller and to disappear, but in my experience only for the time being. I have had cases where large masses of glands on both sides of the neck have completely disappeared for more than a year. Probably a combination of the two methods is at the moment the ideal one. Even at Prof. Regaud's clinic block dissections are the rule.

You will expect me to mention the method of treatment by diathermy, and I will do so, but merely to warn you to avoid it if possible, except in inoperable cases where you cannot get at the growth, and probably in those cases radium is a better weapon to use. It is curious how even surgeons can be swayed by fashions and vogues. Diathermy is one of them. It came in some years ago and had a great vogue; this is quite past among those who have used it much. It is invaluable in certain cases and almost fatal in others. There is nothing mysterious in it; a cold current passes into the tissues; the instrument does not get hot, it is the tissue resistance which creates the heat, and this cooks the tissue. Great experience is needed to get the best results. The cooked tissue then rots off, and in a septic cavity such as the mouth you can imagine the state of affairs after a few days. The same thing can be produced by tying a piece of cooked steak firmly to a tooth and allowing it to rot away. It is no wonder that septic pneumonia frequently accompanies it. It is often, too, very painful, as in all gangrenous processes a line of demarcation must form between the living and the dead and the resulting inflammation is difficult to bear in a part like the mouth, which cannot be kept at rest.

RESULTS.

As to the results it is difficult to speak with certainty as these methods have not been tried very long. There is no doubt, however, that we have improved our position out of all recognition in the last few years. There is not much difference now between the results obtained by operation alone and those obtained by radium and operation. The former are still slightly the better. We can reasonably expect 25 to 30 per cent. of three-year cures at the moment, but here, as elsewhere, everything depends upon the time at which the cases are diagnosed and treated. In really early cases I think 40 to 50 per cent. of three-year cures should easily be obtained, and 25 to 30 per cent. five-year cures. This is a great advance on the previous figures.

PAYING PATIENTS IN HOSPITALS.—The Special Committee of King Edward's Hospital Fund, which is inquiring into the subject of hospital accommodation for paying patients, has just taken the evidence of Dr. S. S. Goldwater, director of the Mount Sinai Hospital in New York.—The governors of Swansea Hospital have decided not to admit or assist with advice or treatment any person who is "able to pay fully for the same."

DETERMINATION OF COMPATIBILITY IN BLOODS.*

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IN the following remarks the classification of the blood groups devised by Moss [1] is used throughout. Group I. consists of bloods wherein the red cells carry both the A and B agglutinable factors of von Dungern,[2] Group II. of those wherein the red cells carry A alone, Group III. of those carrying B alone, and Group IV. of those wherein the red cells have no agglutinable factor. The term agglutinable factor is hereafter replaced by the term "agglutinogen," now in general use in America. This term is open to obvious objections, but is less cumbersome than the alternative expression.

In the selection of donors for transfusion the first step is the identification of those individuals whose blood is compatible with that of the proposed recipient. A compatible blood may be defined as one which can be introduced into the circulation of an individual without giving rise to disturbances due to differences in the agglutinogen-agglutinin formulæ of the two bloods. There are other reasons for results unpleasant to the recipient following blood transfusion. Various diseases, such as syphilis or malaria, may be and have been inoculated with blood from an infected donor; in another category fall the immediate unpleasant or even fatal results which may follow too great or too rapid a transfusion. Still another class of reaction, and one very commonly seen, is that depending on the use of water which, though sterile, is not free from bacterial protein. Certain unpleasant reactions are ascribed to the use of sodium citrate as an anticoagulant, though my own experience would lead me to believe that the water is more often at fault than the citrate dissolved in it. However, I am only concerned here with the means of identifying those bloods which, when introduced into the circulation of another individual, will produce no ill-effects due to interaction between the agglutinogen-agglutinin complex of the two bloods.

As is well known, the transfusion of an incompatible blood is invariably followed by hæmolysis, which shows itself, if the recipient lives, by jaundice, hæmoglobinuria, and the return of the blood count within a few hours to the level at which it stood before the transfusion. Hæmolysis may be regarded as the criterion of incompatibility, and it is necessary to select donors whose bloods are so constituted as to be incapable of causing hæmolysis in the circulation of the recipient. The selection of donors, then, resolves itself into the question of how to identify those bloods which are incapable of reacting with the blood of the recipient in such a manner as to produce hæmolysis. Hæmolysis is a reaction that is comparatively rarely seen outside the body. Agglutination, however, is common. Landsteiner and Leiner [3] produced satisfying evidence that hæmolysis and agglutination are components of the same reaction; they showed that hæmolysis is always preceded by agglutination, and that in the absence of active complement the reaction will not proceed beyond this first step. Jones [4] has made new observations in this direction and confirmed the old. In tests outside the body the criterion of incompatibility between two bloods must be either hæmolysis or agglutination on bringing them together. Experience, for the most part gained during the war, has clearly shown that a blood, the serum of which is capable in vitro of agglutinating the red cells of the recipient, may be infused without harmful results. Hæmolysis with its attendant evils follows upon the injection of a blood the red cells of which are in vitro capable of being agglutinated by the serum of the recipient. This phenomenon is probably explained by the fact that on infusion the plasma of the donor's blood is so immediately and so greatly diluted by the recipient's plasma that the titre of such agglutinins as it may contain is reduced to an ineffective level. The potentialities for hæmolysis and its attendant evils are present; in actual practice it rarely, if ever, occurs. In practice, therefore, an incompatible blood may be described as one, the cells of which are capable of agglutination in vitro by the serum of the proposed recipient, and the selection of a donor resolves itself into the question of the identification of those individuals whose red cells are incapable of agglutination in vitro by the serum of the proposed recipient.

Until recently this appeared to present no difficulties. The theory of von Dungern offered a universally accepted explanation of the blood groups; anyone possessed of sera of Group II. and III. could place any given blood in any one of Moss's four groups, and the compatibility relationships between the four groups appeared to be perfectly understood. In Moss' Group IV. there was believed to exist a class of persons ordained and ordered of God to give their bloods to anyone without putting pathologists to any trouble beyond that of identifying them once and for all.

The Multiplication of Agglutinogens.

These beliefs had only just been accepted when their bases were questioned almost simultaneously by Coca and Klein [5] and by Guthrie and Huck.[6] Both these pairs of workers studied bloods the reactions of which they believed to be explainable only by postulating a further agglutinogen with its appropriate agglutinin. Guthrie and Huck called their newly found agglutinogen "C"; Coca and Klein described theirs as "X." More recently Landsteiner and Witt [6a] and Simson [7] have also described bloods which do not fit into any of Moss's groups and the constitution of which they believe can only be explained by the presence of yet another agglutinogen. Finally Guthrie and Huck have increased the complexity of the matter still further by describing "D" and "Q" agglutinogens. Even one further agglutinogen makes the whole constitution of the blood groups highly involved; the number of possible permutations and combinations of three agglutinogens and three agglutinins is large enough.

The publication of the work of Guthrie and Huck and of Coca and Klein led various pathologists to reinvestigate von Dungern's hypothesis as to the existence of only two agglutinable factors. In this country Jones and Glynn [8] have devised a quantitative method for studying the titre of agglutinogen-agglutinin reactions, and on this basis have searchingly investigated the interactions of 40 individual bloods. They found six bloods giving anomalous reactions, but saw no reason for the postulation of further agglutinogens, other than the original A and B of von Dungern. Similar conclusions as to the sufficiency of von Dungern's original hypothesis have been reached by Mino,[9] Lattes and Cavazutti,[10] Hubener,[11] Schiff,[12] and Flagairolle,[13] and also by myself.[14] Lattes and Cavazutti summarise the causes which they believe have led various workers to postulate the existence of agglutinogens other than A and B as follows: (1) low agglutinogen-agglutinin titre; (2) pseudo-agglutination; (3) failure of complete adsorption in adsorption experiments.

My own experience leads me to believe that the first and third factors are capable of explaining most of the results which have led to the postulation of agglutinogens other than A and B. The existence of great differences in titre both of agglutinogen and agglutinin was, I believe, first pointed out by myself in 1923.[15] I have recently satisfied myself that in some bloods in which both agglutinogens were present the agglutinogen titre of one might be so low as to escape detection altogether except by adsorptic methods, and that in such bloods the agglutinin homologous to the low titre agglutinogen might be present. As an example I may cite one of the six anomalous bloods recently described by myself.

* An address delivered before the summer meeting of the British Pathologists Association.

Blood No. 6.—Red cells were agglutinated by ten Group III. sera. They failed to agglutinate with the two sera of Group II., but were powerfully agglutinated by two other sera of Group II. The serum of this blood failed to agglutinate all cells of Group II. or III. with the exception of one specimen of Group III., with which it gave a trace of agglutination. Absorption of a Group IV. serum by the cells of this blood resulted in the complete removal of both agglutinins *a* and *b*, as shown by subsequent tests against cells of Groups II. and III. The red cells of this blood evidently contained both the agglutinable factors A and B, and so far as the cells were concerned it was therefore of Group I. The failure on the part of two of the Group II. sera to reveal the factor B may be accounted for by a low titre of the agglutinin *b* in these sera and a low concentration of the factor B in the cells. That these sera were deficient in the agglutinin *b* was shown by titrating them against several samples of red cells of Group III. In no instance did agglutination take place in dilutions over 1 in 10 of the serum. In spite of the Group I. constitution of its red cells the serum of this blood contained agglutinin *b*, and in respect of its serum it belonged to Group II. The fact that auto-agglutination of the red cells did not occur in this blood was presumably due, as in the further cases described, to the relatively low titre of the agglutinin and the small proportion of the corresponding agglutinable factor in the cells.

By ordinary grouping methods this blood, though actually Group I., was relegated to Group II. It is significant that these as modifications of Group II. that most of the anomalous blood have been described.

The implications of the observations of Jones and Lynn, Mino, Schiff, and myself may be summarised in the statement that many bloods apparently of Group II. or III. really belong to Group I. The rarity of Group I. individuals in the general population would, on this view, be apparent rather than real. This is supported by the fact, pointed out by myself and Hodge,[12] that Group I. bloods are apparently much rarer than they should be on strict Mendelian grounds.

Unreliability of Grouping Tests.

It is obvious, therefore, that in the present state of knowledge no reliance can be placed upon grouping tests alone as a criterion of compatibility. If the views of Guthrie and Huck and those who think with them are correct, almost infinite numbers of groups must exist, and universal donors must be few and difficult to identify. If, on the other hand, the view be accepted that anomalies are explicable on differences of agglutinogen-agglutinin titre alone, simple agglutination by itself can no longer be regarded as a satisfactory means of assigning an individual to any group. Elaborate adsorption tests are demanded, for which there is usually no time when a donor is being selected.

Furthermore, the grouping of a blood demands the possession of known group sera of high titre, which are not easily obtained. In Group II. the difficulty is not great, but in Group III. it is a different matter. In this respect my own experience is illuminating. For several years I obtained all the Group III. serum which I required from a single donor. This serum was exceptionally high titre, and by using it in a long series of experimental agglutinations and adsorptions I was able to satisfy myself that it was reliable. While using this serum for grouping I chose all donors on the grounds of group affinities, without recourse to direct matching. In a large number of transfusions no incompatibility trouble occurred. About two years ago this source of Group III. serum failed me; I obtained the serum from two other sources and carried on as before, selecting donors on the strength of their group alone and without matching. Before long two cases occurred in which it was obvious that incompatible donors had been used. In both there was complete hæmolysis of all the infused blood, though happily without serious effects so far as the patients were concerned. Investigation of the two Group III. sera used showed that the titre of each was far below that of my original serum of this group. The donors and recipients in both these cases were supposedly of Group IV. I have no doubt now that in both these cases the donors were actually of Group II., but that the agglutinogen titre of their cells was so low as to result in no agglutination when brought into contact with the Group III. serum used.

Direct Matching of Blood.

In view of the difficulty of obtaining Group III. sera of known high titre, I came to the conclusion that the only safe and satisfactory way of determining compatibility is by direct matching of blood. Since adopting this measure there has been no further hæmolysis after transfusion, and such reactions as have occurred have only been of the type attributable either to too great or too speedy infusion of blood or to the use of contaminated distilled water.

The actual technique of typing used is that which I devised some years ago in investigating blood groups, and is practically the same as that adopted as a standard by the American Society of Immunologists.

A few c.cm. of blood are drawn direct from the recipient by venipuncture into a centrifuge tube. Clotting is hastened by placing it in the incubator, and the serum is spun out and then pipetted off into a sterile test-tube and kept in the ice-chest until required. When repeated transfusions are anticipated a few drops of chloroform are added; the serum will then retain its agglutinating properties for years. Blood is obtained from the proposed donors by capillary puncture in the finger or ear by a bayonet-pointed surgical needle. This blood is diluted to the extent of 1 in 100 with normal saline in an ordinary Thoma red cell pipette. This dilution represents the optimum degree for the blood of normal adults. For anæmic persons a lesser degree of dilution may be advisable, but such persons should obviously not be used for donors. Once the blood is drawn into the pipette and mixed with the saline it may stand for many hours without deterioration. Each pipette of diluted red cells is marked with a number corresponding to the entry in the laboratory day-book of the donor's name and address.

For the actual matching one plane and one hollow-ground slide are prepared and each is marked with the identification number of the blood to be tested. On the plane slide is placed one drop of the recipient's serum, and to this is added one drop of the donor's red cell emulsion. Serum and cells are thoroughly mixed with a clean platinum loop. With the loop a drop of the serum cell mixture is transferred to a cover slip and a hanging-drop preparation made in the usual manner. Both the plane and the hollow-ground slide preparations are allowed to stand for ten minutes at room temperature with occasional shaking before a reading is made.

Usually if agglutination is to take place this can be detected within a few minutes on the plane slide by the naked eye. Minor degrees of agglutination are, however, easily missed and the slides are always examined microscopically. No decision as to compatibility is given until the preparation has stood for one half hour at room temperature. The hanging-drop preparations should always be put up because in some cases, particularly when the temperature of the laboratory is high, evaporation may have proceeded to such a degree at the end of half an hour as to render the readings of the plane slide preparation doubtful.

In fresh serum agglutination may not infrequently be replaced by hæmolysis. This phenomenon is readily appreciated under the microscope, though it may escape observation on naked-eye examination alone. As pointed out above, its significance is the same as that of agglutination so far as the compatibility of a proposed donor's blood is concerned.

The dilution of the donor's plasma in the above technique has the advantage of inhibiting rouleau formation. The possible presence of auto-, hetero-, and pseudo-agglutinins has been a bugbear to many workers in this field. It has been shown by many authors that such interfering agglutinins when present exercise their effects only at low temperatures (Landsteiner and Witt [17]). It is for this reason that the preparations are left at room temperature and not placed in the ice-chest, as recommended by Guthrie and Huck and some other workers. Greater safety might be achieved by placing the preparations in the warm incubator, but I have not found this necessary.

This technique is, I believe, as simple as possible, and at the same time as safe, or possibly even safer, than the more elaborate procedures involving macroscopic agglutination or the washing of the donors' red cells. For the reasons given I do not think it necessary to test the red cells of the recipient against the serum of the donor. It is theoretically conceivable that trouble might arise from neglect of this precaution, but in practice I have never known it happen.

Conclusions.

In the selection of a donor for transfusion the one essential test is that of the recipient's serum against the red cells of the proposed donor, and this test should be carried out carefully and according to a standard technique. On considerations of scientific interest it is very desirable that grouping tests should be performed on recipient and donor alike, but little importance should be attached to them until we are more certain as to the constitution of the groups. In transfusion services the mere fact that a person is known to be of Group IV. can never justify the assumption that his blood will suit any and every recipient. Matching tests are as necessary for "Universal Donors" as for other individuals. It is probable that the blood of individuals of Group IV. will be compatible with that of more recipients than that of persons belonging to other groups, and they are therefore desirable persons to have on the roster of a transfusion service. With the recognition of the fact that matching must always precede a transfusion there is, however, no necessity for the exclusion of persons belonging to other groups from such a service.

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INTERMITTENT CLAUDICATION AND ITS TREATMENT BY DIATHERMY.

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THE term "intermittent claudication" was first employed by H. Bouley in 1831 for a condition of lameness in horses where partial stenosis of the abdominal aorta and iliac arteries was present. Charcot, in 1858, fully described similar symptoms in a man where, as a result of a gunshot wound, an arteriovenous aneurysm was produced and the arterial trunk was in part obliterated. He therefore associated the symptoms with ischæmia, and there is much to support this explanation.

Patients seen in clinics generally show some atheroma and hypertension and are between the ages of 40 and 60. Most of them have other indications of bad circulation, such as angina pains, dead fingers, dyspnœa, &c. In several cases, however, the evidence of arterio-sclerosis is not very obvious and many cases have no hypertension. The ischæmic theory is further supported by the rapid recovery after a short rest and by the observations of D'André Thomas and Lévi-Valensi showing that during the attacks there is a diminution of temperature in the affected part. Babinski and Heitz showed that immersion in hot water during the attack increased the pulse oscillations and cut short the duration of the pain. Th disease most commonly affects the lower extremities but also occurs in the arms and back and, les commonly, in the vessels of the brain.

The early symptoms of the crural type are tired ness, light cramp in the calves, and sensations c heat and cold, usually in the toes but sometime throughout the leg. The usual symptoms of claudica tion of the nervous centres include temporar paralyses, headaches, fatigue, inability for effor alterations in character, attacks suggestive c migraine, changes in memory, aphasia, amblyopi and blindness, and narcolepsy. In all cases th symptoms are increased by exertion, by load, uneve ground, indigestion, and hurry; they are usuall worse in winter. The condition in the leg sooner c later increases in intensity until agonising cram develops; some cases progress to gangrene. In th brain some permanent organic change, such a hemiplegia, is liable to occur. Other cases develo the full clinical picture from the first without an preliminary warning.

As a rule, the affected extremity shows som mottling of the skin or vein streaks, a variation i local temperature, and a diminution or abolition the pulse in the distal arteries. Shrinking of th retinal vessels has occasionally been noted in th cerebral attacks. Other cases fail to show an objective signs, and pulsation remains present. The facts favour the explanation of a definite anatomic stenosis, probably with a vasomotor element causi temporary spasm of the arterioles.

In 1905 Ramsey Hunt wrote: "Three facto must be recognised in the production of claudicati ischæmia—one, constant and organic in natu diminishing the calibre of the vessels; and tv factors, inconstant and functional, the tendency vasomotor spasm and the increased demand up the circulation of the part during activity." Comro objects to the name in so far that the term "int mittent" is misleading. He points out that or the symptoms are intermittent, the anatomi stenosis which is responsible for the excruciati pains being constant. He therefore suggests t term "paroxysmal." Other terms suggested ha been dysbasia intermittens angiosclerotica (E 1898), angina cruris (Walton and Paul, 1902), a paroxysmal angiospasm dolorosa.

Ætiology.

Much doubt still exists as to the ætiology. H was the first to stress the importance of tobacc of 172 cases only 7·4 per cent. were non-smokers a 50 per cent. were heavy smokers. Most writers ag with this statement, although Vaquez,[2] as recently 1925, stated that too much stress had been laid tobacco as a factor. Guilleminot[3] thinks toba very important, and quotes Meyer's statement th a diagnosis of intermittent claudication in a n smoker is wrong. Parkes Weber[4] states that in disease thrombo-angiitis obliterans, common in m Jews, of which intermittent claudication is a sympto "he has never come across an instance of this dise in a woman, nor yet in a man who has not, or h not been a free cigarette smoker."

Other ætiological factors include alcohol, syphi gout, and diabetes. Déjerine believed that syph was nearly always an important factor, although L and Déscoust[5] found no improvement from a syphilitic treatment and could trace no importanc diet. Recently influenza has been blamed as the or provocative cause. Other considerations are stress and strain of life, infectious disease, tea coffee, &c.

Philips and Tunick[6] found a persistent leucocyt in many cases of thrombo-angiitis obliterans, sugg ing a chronic infection, although they also belie that tobacco produced alterations in the blo vessels, either directly by making them m susceptible to inflammation and thrombosis indirectly by effects on the vasomotor appara Meyer in several cases found a hyperglycæmia.

The essential cause of the disease, therefore, like that of thrombo-angiitis obliterans, remains unknown.

The following case shows the disease primarily affecting the lower limbs, progressing to gangrene, and secondarily involving the cerebral vessels, with frequent attacks of hemiplegia and aphasia. The cerebral attacks are similar to those of two cases of transitory hemiplegia occurring at ages 57 and 71, reported by Langwill [7]; in neither was there any evidence of hypertonus or arterio-sclerosis.

A married Englishman, aged 59, a jeweller's assistant, first consulted one of us (A. W. G.) in August, 1924, complaining of a feeling of cramp in the left foot and calf on walking short distances, passing off after a brief rest, and recurring after another short distance.

Despite treatment as hereinafter described, the condition steadily became more severe until Oct. 5th, when he had intense pain in the left leg and took to his bed. On Oct. 6th the left leg below the knee was cold and dead and no pulsation could be felt in the femoral or popliteal arteries or in the dorsalis pedis artery. The leg was wrapped in cotton-wool and surrounded with hot-water bottles, but there was no return of pulsation. He was confined to bed for several weeks, and in January, 1925, definite dry gangrene commenced in the great toe, and on Feb. 26th the leg was amputated at the seat of election by Mr. Reginald Alcock. Unfortunately, no pathological examination was made of the blood-vessels of the leg removed. Healing was rapid except for the subsequent removal of a small sequestrum.

He remained well and had no further trouble until the night of June 14th, 1926. He awoke suddenly with a feeling that his whole body was dead. He could only move his head and upper part of the trunk. His mental faculties remained unimpaired and there was no pain though he was acutely anxious. He failed to get out of bed and could not cry for help, but after a few minutes the attack suddenly passed off and he was able without difficulty to move freely. His alarm passed away and he returned to bed and slept well till the morning.

On June 19th he had a similar attack and a third attack in the forenoon of June 20th while at rest in bed. The fourth attack occurred during dinner the same evening; the weakness was particularly marked over the right arm and leg and there was complete aphasia, except for an inarticulate noise, but consciousness remained throughout. This attack lasted about five minutes and was followed by six similar attacks the same evening, all beginning with a slight warning, so that the patient could declare that an attack was coming. A minute afterwards the face became pale and more or less complete hemiplegia set in, involving the right side of the face, arm, and leg. He remained conscious but was obviously alarmed, and endeavoured to speak and answer questions but only achieved an unintelligible jargon. The attacks passed off completely except for a sense of weakness and weight in the right arm, and he began to notice that the finer movements of his fingers were at fault and writing became difficult. His script was shaky, uneven, and difficult, similar to that of writer's cramp, so that even tremendous mental effort failed to complete a word. The movements of the right leg were free while lying on the bed or sitting in a chair, but when standing no degree of effort could move the leg even when he was supported by crutches.

During the attack the right plantar reflex became a doubtful extensor and was quite definitely flexor after the attack. The ankle-jerk was present, but the knee-jerk could not be elicited owing to bony ankylosis of the joint.

On July 7th, 1926, he was admitted to the North Staffordshire Royal Infirmary where he remained an in-patient until August 7th.

Previous History.—As a child he had a tuberculous right knee which has been completely ankylosed for many years as a result of fixation treatment. This is his only illness. He has led a quiet life, having his meals at regular hours and in no hurry. He drinks a pint of ale daily and a very occasional glass of spirits. There is no history of syphilis. He smokes ten cigarettes daily and about 2 oz. of tobacco in pipe per week. He was able to walk good distances and did a 10-mile walk every Sunday.

Family History.—His father died, aged 81, from cancer of the stomach. His mother died, aged 87, from cerebral thrombosis after repeated minor attacks of hemiplegia. His wife is healthy and has had no miscarriages. There are two daughters and one son alive and all in good health.

Condition on Admission.—His general nutrition was good. There was no anæmia. Apart from the amputation of the left leg and the ankylosis of the right knee, there was little to note on external examination. The teeth were bad, showing much dental caries and pyorrhœa. The heart showed no enlargement; the action was regular, 72 per minute, and no bruits were heard. The systolic blood pressure was usually about 130 mm. of mercury. No atheroma was noticed. The electrocardiogram showed no special features. The lungs and abdomen appeared normal. The cranial nerves were all intact and no weakness of the eye muscles was noted. Examination of the retinæ was done by Mr. S. McMurray who reported: "There is no evidence of arterio-sclerosis of the retinal vessels." There were no sensory changes to touch, heat or cold, and no astereognosis. The plantar reflex was flexor. The ankle-jerk was present and no ankle-clonus could be elicited. The abdominal reflexes could not be obtained. The arms were thin and there was some slight wasting of both thenar eminences and of the interossei muscles. The grip of the right hand was enfeebled. There were no tremors and no paralysis. The Wassermann reaction of the blood was negative.

The blood picture was: red cells, 7,200,000; white cells, 27,100; hæmoglobin, 65 per cent. Differential count: polymorphs, 79 per cent.; mononuclears, 1 per cent.; lymphocytes, 19 per cent.; basophils, 1 per cent. There were no changes in the shape of the red corpuscles. The blood-sugar was 0·18 per cent. The urine was clear, contained no sugar or albumin, and no renal casts. The blood-urea was 108 mg. per cent., and the urea-concentration test was normal.

Treatment.

The treatment of intermittent claudication in the past has been far from satisfactory, and has depended largely on the free use of vasodilator drugs and other remedies to act on the vasomotor spasm and relieve the ischæmia. Byrom Bramwell [8] remarked in 1907 that in cases which are not syphilitic "very little can, so far as we at present know, be done to cure the disease."

Recently diathermy has been tried fairly extensively and apparently with great success, because of its vasodilator effects on the small arteries and capillaries. According to Roeser,[10] diathermy is capable in some cases of checking the spread of the arterial block, and as the effects are rapid and there are no contra-indications to its use he advises its early application in all cases. This is important, as Lian and Descoust believe the good effects may be permanent.

General hygienic treatment should be carried out. Removal of septic teeth and other septic foci is essential as toxic absorption may be a factor in the production of the endarteritis which is probably always present. Abstinence from tobacco should be insisted upon, although it is difficult to believe that it had an important bearing in this case. Avoidance of exposure to cold and diminution of protein intake are recommended.

In this case all such treatment had been advised and followed since the condition was diagnosed in 1924, and regular treatment by potassium iodide, potassium nitrate, and nitrites had been carried out. Bier's congestive treatment seemed to give no relief. He was asked to drink 2 quarts of modified Ringer's solution daily, as recommended by Portis.[9] This solution is made by dissolving gr. 10 of potassium chloride, gr. 10 of calcium chloride, 6 drachms of sodium chloride, gr. 10 of sodium bicarbonate, and gr. 50 of dextrin in a gallon of distilled water. This treatment, however, was so distasteful to the patient that he did not persist for more than two weeks, although he has taken smaller quantities from time to time. After the amputation he was confined to bed, ensuring rest, but on several occasions he developed a sharp stinging pain in the left thigh with a large area of superficial blotchy redness on the outer side of the thigh; this yielded to local treatment by ichthyol ointment and warm applications.

The onset of the cerebral attacks decided us to try diathermy, especially as we were familiar with the good effects in cases of hypertension. Following the advice of Roeser,[10] Giraud,[11] Vaquez, and others, we gave exposures lasting 30 minutes, the maximum current used being 1000 milliampères. At first twice a week was considered sufficient, but later he was readmitted to the Royal Infirmary on Nov. 6th, and had this séance repeated daily for 20 days as recommended by Roeser and others. Lian and

Descoust emphasise that strong currents are not necessary and advise 1200–1500 milliampères.

If the plates are sufficiently large there should be a sensation of heat without burning or pain, and the blood thus warmed carries the superfluous heat to the rest of the body. There is probably, therefore, nothing to be gained by having one plaque over the seat of the arterial block. On one occasion we tried one plate over the left motor area, and this was the only occasion on which considerable headache followed the treatment. Improvement was noticed from the first, not only in the general well-being but also in the local effects. The writer's cramp speedily improved so that he could write with his usual facility in a short time, and his ability to walk was speedily restored. Pulsation in the femoral artery remained absent. Up to the present no further attacks have occurred, and the general health remains at a high level.

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AN OUTBREAK OF SPOROTRICHOSIS AMONG SOUTH AFRICAN NATIVE MINERS:

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SPOROTRICHOSIS usually occurs in isolated forms. We met it as an outbreak comprising 14 persons. This lends interest to the cases, apart from the fact that this is the first time that sporotrichosis has been recorded in South Africa. We have formerly called attention to the relative frequency of nocardia infections in South Africa as compared with infections by fungi of larger calibre.[1] Our own fruitless efforts to find a case of sporotrichosis, extending over many years, had led us to believe that the disease was non-existent in the country.

The Lesions.

For a few months the mine medical officer had noticed that there was an increasing number of natives suffering from various kinds of sores which did not yield to ordinary treatment. Routine laboratory reports on material from these cases mentioned only the presence of staphylococci. One of us (B. D. P.), on a chance visit to the mine, made a tentative diagnosis of sporotrichosis, which was fully confirmed when material from one open sore was sent to our laboratory, and on a suitable medium produced a typical growth of fungus after five days. This culture was badly contaminated by cocci and fungi from the air. A special visit was then paid to the mine, and 14 suspected natives were examined. In five cases culture of the fungus was attempted, and was successful every time, twice by aspiration of pus through the unbroken skin, twice from the contents of an opened abscess, and once from an ulcer. The other cases did not possess suitable material for cultivation and were diagnosed as sporotrichosis because their symptoms were so very similar to those five, because they yielded rapidly to treatment with potassium iodide, and also because their blood serum gave satisfactory agglutination and complement-fixation tests. Wassermann reaction was positive in two cases only; one of these gave a positive culture, and the other one gave a particularly high agglutination reaction.

A "primary sore" was found in nearly all cases in the form of a localised ulceration on a finger or on the shin. Sometimes this ulceration showed slight signs of healing. Ten of the fourteen cases had all their lesions confined to one arm, sometimes as high up as the shoulder region. The other four had primary sores on the shin, in one case a very large dry granulating surface, and their lesions extended up the leg, sometimes reaching the buttock. These lesions, extending from the primary sores up the arms and legs, were easily palpable, taking the form of a lymphangitis with nodules in various places. Incision of the nodules, which felt like lymph glands or small abscesses, produced pus or serous fluid, but no healing followed this surgical treatment.

At the time of our examination two natives had been in hospital in connexion with the affection for five months. The other cases were of shorter duration, from a few weeks to four months. Apart from their lesions the patients were in good condition.

After administration of potassium iodide in the usual high doses all the natives returned to their work within two to three weeks.

Cultures and Serology.

All five cultures obtained proved identical. Their characteristics were briefly as follows:—

There was practically no growth in the incubator. This provided a method to ensure that cultures are pure, for contaminations which remain hidden at

FIG. 1.

Cultures of the fungus on Sabouraud's glucose-agar two months old.

room temperature will show at blood heat. It is surprising how often apparently pure cultures are found to contain staphylococci. This is important because we have found that the fewer staphylococci there are present, the longer it takes for the brown pigment of the fungus to appear. We therefore believe that the degree of staphylococcal contamination present in an individual strain of *Rhinocladium* (*Sporotrichum*) *beurmanni* is responsible for its falling into any one of the three sub-groups, α, β, and γ, as described by Gougerot,[2] and which are differentiated only by the rapidity with which pigmentation takes place. Our description applies to perfectly pure cultures.

Sabouraud glucose-agar (Fig. 1).—Growth starts after a few days, as a convoluted centre with marked areola, and it spreads until it reaches the glass. The areola becomes

[1] Jour. Trop. Med. and Hyg., June 15th, 1927.

[2] Gougerot: Kolle und Wassermann's Handbuch der Pathogenen Mikroorganismen, Bd. v., 1913.

very broad, up to 1 cm. Pigment is slow in coming; after a fortnight the growth is hardly tinged. After six weeks it is like very weak coffee, with milk; after two months it is typical café-au-lait, and still older cultures become chocolate-brown. The medium, however, darkens more quickly than the growth, and is dark brown after two months, becoming pitch black after that. Sections through cultures show that there is at least as much growth within the medium as on the surface. The surface growth is not coherent. The central parts always remain very convoluted and the highest crests rise 3 mm. over the surface. They are surrounded by a flat zone, and then follows the fringe of areola.

Milieu d'épreuve.—Growth very rich, convolutions often rising higher than on Sabouraud glucose-agar. Pigment develops sooner, both in culture and medium.

Potato and glycerin-potato.—After a fortnight quite white corrugated growth, covered with fine spicula, surrounded by areola. Medium and growth become brown after one month, and nearly black after two months.

FIG. 2.

Photograph of hanging-drop culture of fungus ten days old.

Beerwort-agar.—Aspect of growth as above, but pigmentation sets in much sooner, the crests turning quite black in a fortnight.

Carrot.—Very rich growth, very thick convolutions, keeping white for at least two weeks and then showing patches where dark black spicula arise. Carrot does not deepen much in colour.

Ordinary agar and milieu de conservation.—Poor growth, keeping flat, but convolutions visible, quickly turning brown.

Glycerin-agar.—Rich growth, keeping white for over a fortnight.

Blood-agar.—Good growth, darkening rapidly, no hæmolysis.

Dextrin-agar.—Rich growth, keeping just tinged for a long time. The medium shows no signs of clearing.

Litmus milk.—Keeps fluid, with dark brown skin on top, white sediment, and bluish colour.

Glucose-peptone-water.—Surface skins form which sink and form again. Colour, white to light brown. Medium remains slightly acid, but does not become pigmented.

Coagulated blood-serum.—Hardly any growth, and no liquefaction.

Starch-paste.—Growth keeps white for a fortnight, then liquefaction occurs.

Coagulated egg-white.—Good growth, without liquefaction. Growth keeps white for a fortnight.

Carbohydrates.—Good growth, but no change in the usual media containing glucose, lævulose, maltose, galactose, saccharose, lactose, mannite, dulcite, dextrin, raffinose, arabinose, adonite, inulin, sorbite. Usually white tufts at bottom, sometimes white skins on top. No pigmentation of medium.

Gelatin and *glucose-gelatin.*—Observations extending over two weeks. No liquefaction in either. Faint yellow tinge of growth on gelatin, no zona, convolutions present, trace of brown pigment diffusing into medium. Dark brown pigmentation on glucose-gelatin, brown pigment diffusing into medium.

Hanging-drop cultures (Fig. 2).—Branching threads, but dichotomy, thickness 1·3 to 2 micron. Conidia formed regularly along the threads, and also in bunches at ends of threads. No true conidiophores. The conidia measure 2 to 4 micron, and have a short pedicle, which remains attached to them. It also happens that the thread shows a protuberance where the spore is situated. After many weeks the threads are completely surrounded by the spores.

From this description it follows that the fungus isolated by us is *Sporotrichum*, or, to adopt Vuillemin's nomenclature, which we think is preferable,[3] *Rhinocladium beurmanni*. It differs only in one point, the non-liquefaction of glucose-gelatin. This may be due to our excluding all contaminations, especially of the staphylococcal kind (see above).

We are aware of the inherent fallacies of serological diagnoses in fungal infections, caused by their lack of specificity. We do not regard such tests as decisive, but as helpful. Positive agglutination reactions in serum dilutions varying from 1 : 80 to 1 : 320 were obtained with a suspension of spores in all cases where no attempt at cultivation had been made. Serums from various other patients gave negative results by this method. Complement-fixation tests were undertaken with an antigen consisting of the spores of a fungus which had been isolated from the nails of a patient with onychomycosis. This fungus, which has not been definitely classified yet, is at least closely related to the sporotrichons. Positive results were given by 7 out of 11 cases tested. Here also control sera gave negative results.

Animal Experiments.

These were undertaken to test the pathogenicity of the cultures. Three male white rats were injected intraperitoneally with a suspension of spores, and killed a fortnight later. They showed lesions in the abdominal wall at the site of injection, which had become hard and hyperæmic. Nodules were always found in the omentum in varying numbers. Liver and spleen were apparently normal, the chief lesions always being found in the scrotal sac. This was injected and showed nodules, and in one animal the testes were enlarged. Nodules were also found in the connective tissue round the testicles. On microscopic examination typically shaped spores were found in all these lesions, mixed with leucocytes, and surrounded by rings of fibrous connective tissue. Retro-cultures succeeded from all the lesions.

Discussion.

In South Africa sporotrichosis so far has been unknown. No pathologist lays claim ever to have isolated the fungus, although clinicians may have applied the term loosely to undiagnosed cases. It is strange that our own prolonged search should suddenly result in the discovery of an outbreak comprising 14 cases. The natives affected had nothing in common which differentiated them from the numerous other natives inhabiting the mine compound. They belonged to different tribes, had been in the service of the mine for periods from two to nine months, were engaged on different kinds of work in the mine, on different levels and in different shafts. They did not mix more with one another than with the other inhabitants of the mine. No simple clue was evident as to the origin of the infection. The seventy miles which separate the mine from the laboratory prevented further investigations.

We wish to thank Dr. A. J. Orenstein, superintendent of sanitation, Rand Mines, Ltd., and Dr. M. M. Pam, assistant medical officer, Modder East Mine, for giving us access to the clinical material.

[3] Brumpt: Précis de Parasitologie, 1922.

NEW POOR-LAW HOSPITAL AT STOKE-ON-TRENT.—The Stoke-on-Trent Board of Guardians recently unanimously approved a scheme for providing a new Poor-law hospital at a cost of £200,000. It will afford accommodation for 180 medical and surgical cases, with a central administrative block, an isolation block with 50 beds, a children's block with 44 beds, and a nurses' home with accommodation for 150 nurses. The special committee which recommended the scheme stated that, large as it is, it will be inadequate for the needs of the district, though it will do something to relieve existing difficulties. Dr. G. Gordon Lewis, the board's medical officer, stated that hospital accommodation in Stoke-on-Trent is quite inadequate, and added that it was "a disgrace that in a town with a population of 300,000 there is no provision for patients suffering from surgical tuberculosis."

Clinical and Laboratory Notes.

A CASE OF DIABETES WITH RENAL GLYCOSURIA.

BY C. VOIGT, M.D. LIVERP., D.T.M.,
SUDAN MEDICAL SERVICE; LATE HON. ASSISTANT PHYSICIAN, WIGAN ROYAL INFIRMARY.

AMONG cases of true diabetes it is, of course, not unusual to notice certain ones in which the sugar tends to appear in the urine at either a high or a low level of blood-sugar concentration. In view of the danger of an unrecognised low renal threshold to the successful control of diabetes by means of insulin, the following case may be of interest.

A railway worker, aged 38, said that in the last few weeks he had had to give up his employment on account of failing sight. He complained of (1) this failing sight, which he had noticed first about 12 weeks before; (2) thirst, which had troubled him for about six months; and (3) profound general weakness for the last three weeks. He was married and had one healthy child. His family history and previous history were irrelevant.

Upon admission to hospital he was found to have a blood glucose content of 626 mg. per 100 c.cm. There was marked ketonuria. Examination of the eyes revealed nothing of moment.

Insulin treatment was started, and while next day the fasting blood-sugar was found to be 110 mg. it was noted that there was still much sugar in the urine. In the sample passed half an hour after this blood sample was collected there was found to be 4 per cent., and in one passed one and a half hours after 3·6 per cent. of glucose. A confirmatory blood estimation was therefore made, and showed 125 mg. per 100 c.cm. A sample of urine half an hour later contained 3 per cent. of glucose. The following investigation was subsequently done.

Urine.—The 24 hours' sample never contained protein or casts. The diastatic index was 10; chlorides, 0·5 per cent. (total 10·95 g.). Urea nitrogen, 1·45 per cent. (total 30·74 g.).

Blood.—The serum Wassermann reaction was completely negative. The fasting chemistry was uric acid, 3 mg. per 100 c.cm.; urea nitrogen, 20 mg. per 100 c.cm.

Renal Efficiency.—(1) Urea concentration: second hour, 2·6 per cent., third hour, 2·9 per cent. (2) Phenolsulphonphthalein excretion: appearance time (intravenous injection), five minutes. First hour, total specimen, 45·5 per cent.; second hour, 30·7 per cent., making 76·2 per cent. in all. (3) The Mosenthal test gave the following:—

—	Test quantity.	Sp.G.	Glucose (per cent.).	Corrected Sp.G.
8 A.M.	3 oz.	1040	1·8	1035
10 ,, ...	5 ,,	1040	2·3	1030
Noon	5 ,,	1038	2·4	1030
2 P.M.	3 ,,	1042	1·6	1037
4 ,, ...	3 ,,	1040	8·3	1023
6 ,, ...	5 ,,	1042	10·0	1009
8 ,, ...	4·8 ,,	1043	1·0	1040
10 ,, ...	7 ,,	1040	8·3	1023
Next day, 8 A.M.	8 ,,	1040	12·5	1004

Total quantity, 73·8 oz. (2189·6 c.cm.). Chlorides, 500 mg. per 100 c.cm. (total 10·95 g.). Urea nitrogen, 1·45 per cent. (total 30·74 g.).

The two charts show the investigation of the renal threshold point for glucose. In the case of Chart A the use of artificial light was unavoidable, and this no doubt spoiled the sharpness of the result by making it difficult to detect slight reduction of Fehling's solution by the urine. The actual concentration at which, in this case, glucose begins to pass through the kidney seems to be about 80 or 90 mg. per 100 c.cm. of blood, and the patient will always have sugar in the urine, unless he is given a dose of insulin sufficient to bring his blood-sugar dangerously low. Exactly five minutes, in fact, after the sample of blood was taken (which in the investigation of Feb. 25th was found to contain only 0·063 per cent. of glucose), and while the urine was still glucose-free, this patient did begin to manifest the sympathetic over-action characteristic of hypoglycæmia.

A fractional gastric analysis revealed a tot absence of free hydrochloric acid, the total acidit reaching only 17·5 (at two and a quarter hours Bile appeared first at two and a quarter hours, an starch persisted up to two and three-quarter hour Radiographic examination of the stomach an

CHART A.

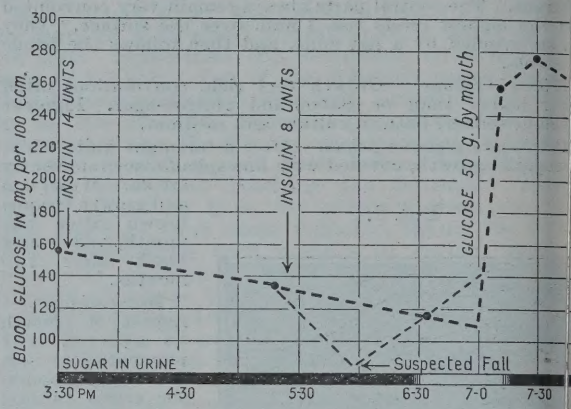
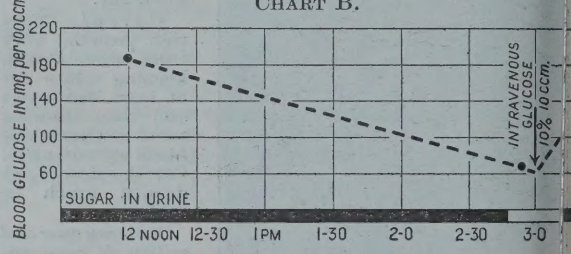


CHART B.



duodenum showed normal appearances, motili and emptying. A radiogram of the pituitary fo showed nothing of interest. The patient never l suffered from any dyspepsia or troublesome he aches. The systolic blood pressure was 138 m and the diastolic 90 mm.

Discussion.

It seems more than unsatisfactory to accept s very low renal thresholds for glucose—and m others raised to such levels as 210 mg. per 100 c.cm as inexplicable peculiarities, notwithstanding remarkable uniformity of the normal. Slight d in excretion of urea is certainly encountered in sc of cases where other tests acquit the kidney of inefficiency, as in the case under consideration, I have not observed such delay in uncomplica renal glycosuria. K. S. Hetzel [1] has an ingen explanation of the causation of hyperglycæmia acromegaly, and suggests that pituitary over-ac may, by direct action upon the kidney, raise threshold point. I could find no evidence of pituit insufficiency in my patient. Blood pressure read were not low, nor was the specific gravity, caref corrected for contained glucose, of the urinary sam throughout the day; nor had he any headac Admittedly, these points are not conclusive.

Since it seemed probable that the achlorhydria preceded the hyperglycæmia, the patient—after t weeks' treatment aiming at correction of ketos was put upon acid hydrochlor. dil. (ℳxx with w at meals), to see whether acid would have any e upon the glycosuria, perhaps by changing, how slightly, the hydrogen-ion concentration of the ser No change was noted. Possibly the lack of free hy chloric acid may have something to do with permeability of the kidney for even the most fe concentrated solutions of glucose—perhaps by turbing the balance of ferments in the alimen tract. T. I. Bennett and E. C. Dodds [2] have sh

[1] THE LANCET, 1926, i., 440. [2] Ibid., 1925, i., 429

hat glucose solutions are retained and diluted in the tomach. In this case there is evidence that carbo-ydrates are not hurried through a rapidly emptying omach; on the other hand, many processes in the ut will be modified by the want of the normal imulus of acid leaving the stomach. It may be structive to make gastric analyses in available cases renal glycosuria, and to investigate renal threshold oints of patients showing total achlorhydria.

A CASE OF HIRSCHSPRUNG'S DISEASE IN OLD AGE.

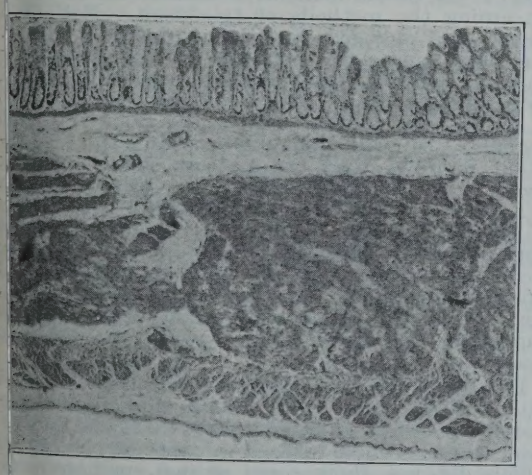
BY S. HAROLD COOKSON, M.D., B.SC. BIRM., M.R.C.P. LOND.,
MEDICAL REGISTRAR, MIDDLESEX HOSPITAL.

THE following case has interesting features.

In September, 1926, a man of 69 was admitted to the ddlesex Hospital with the major complaint of swelling the abdomen. He gave a history of good health, except constipation which had troubled him for some years; e years before admission he had a "very bad stoppage the bowels" for which the doctor thought an operation uld be necessary. Since then he had been taking large antities of purgatives. Four months before admission noticed that his abdomen was swelling, and this gradually reased, to be followed soon after by swelling of the legs, rtness of breath, and general weakness. His appetite s good, and as to habits he took alcohol moderately, glasses of beer per day, but smoked 1½ oz. of tobacco ly.

On examination he was found to be a very obese man; was not cyanosed but had to sit propped up in bed owing dyspnœa. The legs were slightly œdematous and the domen was very distended but not quite symmetrical. upper part of the abdomen and left flank were most minent. On percussion, dullness was only found in the flank; this did not shift with change in the patient's titude and there was no thrill. No definite tumour was

FIG. 1.



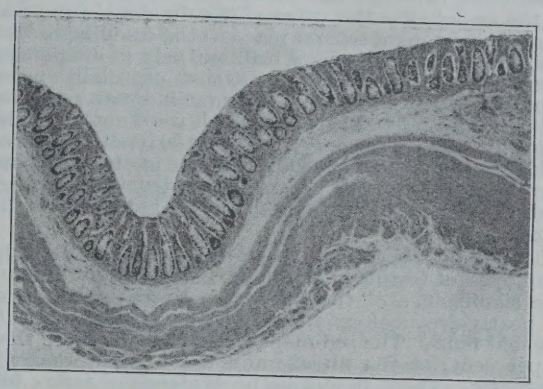
ction of descending colon from the case reported, showing thickening of muscular layer. (*Microphotographs from the Bland-Sutton Institute of Pathology.*)

able in the abdomen, and per rectum there was balloon-ut otherwise nothing abnormal. The heart was concealed ung and no apex-beat or cardiac dullness were to be out. The accessible arteries were only slightly ened and the blood pressure was 150/105. The physical in the lungs were those of emphysema and chronic chitis. The urine was normal and the central nervous m was intact. The blood Wassermann reaction was tive and the blood count and blood nitrogen figures within normal limits. After a few days in hospital lyspnœa and œdema of the legs increased, while three s after admission the abdominal girth was 53½ in.—is to say, 4½ in. greater than on admission. Constipation severe throughout the period of observation. After he had been in hospital a month the patient died suddenly while trying to defæcate after a turpentine enema.

At autopsy the large intestine was found greatly distended throughout; the diameter was maximal in the pelvic colon, where it was 6 inches. The walls were very thick, especially in the sigmoid and rectum; the latter was distended and occupied the greater part of the pelvic cavity. A large quantity of fluid and gas was contained in the colon. No evidence of organic obstruction was present in any part of the gut and the remainder of the alimentary canal was normal. The heart weighed 16 oz.; all its cavities were dilated; the muscle was fibrous; it showed brown atrophy, and the coronary arteries extensive atheroma. The cause of death was found in a large pulmonary embolus, the source of which was not traced.

The enormous hypertrophy of the musculature can be seen in Fig. 1, and by comparison with Fig. 2 it will be seen that its thickness is three to four times that of the normal. The mucosa is unaffected.

FIG. 2.



Section of normal descending colon to show th ckness of muscular layer.

The interest of this case lies in the age of the subject. The condition is commonest in childhood and under the age of 10 years its incidence is 1 in 10,000. It is very rare over 30, and as far as I have been able to discover no case has been recorded over 40.[1] Bartle [2] records the case of a patient with megacolon who survived till the age of 29, and then, like the present one, died suddenly while trying to defæcate. Of the many theories which are held on the cause of the disease, that suggested by A. F. Hurst seems the most satisfactory. He suggests that it is due to an achalasia, or failure to relax, of either the anal or pelvirectal sphincter. In the former case the dilatation involves the whole colon, while in the latter it occurs above the pelvirectal junction. The case reported falls in the first category, as the rectum showed considerable hypertrophy and dilatation. The defect, on this view, is analogous to achalasia of the cardia, which leads to œsophageal dilatation. As in the latter condition the treatment consists in periodic stretching of the sphincter concerned, supplemented by enemata, abdominal massage, and exercises. Pituitrin injections and a low carbohydrate diet are also recommended.[2]

At what age, in the present case, the neuromuscular incoördination, which seems to be the likely cause, developed is a matter for speculation. All that can be definitely stated is that constipation was severe for the last five years of the patient's life; on the other hand, abdominal swelling had only been noticed for four months. The patient was an obese man, however, and it is not unreasonable to suppose that the colon had been dilating and producing a slow abdominal enlargement for years without attracting his attention. Also the degree of hypertrophy present in the colon muscle is not developed in a few months.

I am indebted to Dr. R. A. Young for permission to publish this case.

[1] Hurst, A. F.: Medical Essays and Addresses, 1924.
[2] Bartle, H. J.: Amer. Jour. Med. Soc., 1926, clxxi., 67.

Medical Societies.

MEDICAL SOCIETY OF LONDON.

AT a meeting of this Society, held on Oct. 24th, Mr. HERBERT W. CARSON, the President, in the chair, a paper was read by Dr. VINCENT LYON (Philadelphia) on the development of the

Duodenal Tube and its Practical Value

in diagnosis and treatment. Dr. Lyon began by paying tribute to the work done on the subject in the past by British and American workers. As a diagnostic agent, he said, the duodenal tube was of less service in some regions than were other methods, but in all it afforded evidence not procurable by other means. In the œsophagus the value of the duodenal tube was limited and took a second place to the œsophagoscope and bougie; but it was of brilliant help in diagnosing stomach and duodenal conditions, especially when supplemented by X rays. It might indicate gastritis, catarrh, and reflex disorders which were not recognisable by the rays only. Particularly it rendered evident early primary alterations in the mucous membrane—i.e., long before gross structural change had developed to an extent to be recognisable by X rays.

Dr. Lyon proceeded to describe the method he employed of testing the 12-hour fasting residuum and the significance of the findings. Normally this was of pearly-grey colour and of the consistency of thin mucoid fluid. The sediment should not be more than 5 per cent. of the filtrate and the odour pleasantly aromatic. There should be no evidence of reflux bile colouring unless there was a pronounced gag reflex in swallowing the tube. Bile in the fasting stomach day after day was often the cause of morning nausea and a bitter taste at breakfast and anorexia. There should be no gross bleeding, and when such was present it suggested the presence of cancer, ulcer, papilloma, or syphilis.

Before, however, drawing conclusions from the presence of occult blood a careful examination should be made of mouth, gums, and pharyngeal mucous membrane. The fasting acidity was variable in degree, and it was doubtful whether there was a dependable normal to work upon. Many factors might influence it, such as sleeplessness, much alcohol taken the night before, worry, &c. The microscopy of the fasting residuum was also of much importance, especially was its analysis on a quantitative scale. If food abnormally retained contained meat fibre, starch cells, or fat globules, this showed either motor delay or unusually deep rugæ.

In the duodenal zone the duodenal tube possessed great diagnostic value in the majority of cases; he based this statement on many thousands of cases. It was a relatively easy matter for a soft rubber tube of small calibre to be carried through the pylorus into the duodenum, and he found no difficulty in intubating the duodenum in 20 minutes in a normal case; longer must be taken for a pathological one. Normally the pylorus rhythmically opened and closed four or five times each minute, and when the end of the tube was impinging on the pylorus and with the patient swallowing each minute, it would soon be able to enter the duodenum, and it then lay in the second portion of the duodenum in close relation to the common bile and pancreatic duct. As much duodenal contents as possible should be secured and its colour and characteristics noted, its mucoid content and degree of flocculation.

Practically all the text-books stated that the mucous membrane of the small intestine was lined only by columnar epithelium, but he and his colleagues had been impressed by the fact that the commonest cellular exfoliation from the duodenum was oval or cuboidal, not columnar. With the tube in the duodenum the occurrence of microscopical bloo or occult blood was highly suggestive of duoden ulcer or carcinoma of the head of the pancreas. H and his colleagues had made several classes of duoden condition, such as the simple catarrhal, the exfoliativ the ulcerative, the infective. It had been found tha in the sick cat and dog the motor power of the gal bladder was distinctly diminished.

A differentiation should be made between cyst and common duct catarrh, and there ought to be careful microscopical examination made of the bi fractions secured. He considered that the mo important finding was an oleaginous material, whic melted out in globules and was found in minute lake Chemically it was not a true fat, but a fat ester cholesterol. In acute, subacute, and chronic chol cystitis there was an increase in the bile-staine material. In calculus cholecystitis the bile was oft loaded with crystals—i.e., cholesterol, calcium, an bilirubin. Some gravel stones had been recovered biliary drainage.

Over a large number of cases the duodenal tul diagnosis was found to be correct in 88 per cen Only positive findings were of diagnostic value. some cases the mucous membrane had been complete denuded, and in them the diagnosis of non-calcul cholecystitis must be made by physical and X r examinations and by X ray examinations, as well by a chemical study of the blood. When bett physiological and chemical methods had been devis for the quantitative estimation of normal a pathological findings and evidence in regard to t bile, a greatly renewed impetus would have tak place, and many at present baffling problems wou probably be elucidated.

In the medical variety and that due to parasit also that due to toxæmia associated with hepati and cirrhosis of the liver, the use of the duodenal tu was of great value. It was also of great help treating persistent hiccough. Also its employment biliary tract drainage and in duodenal lavage v worthy of a trial. In regard to the treatment of pep ulcer, in the States there was considerable discont concerning the methods of treatment. Methods surgery had changed, but the morbidity continu Ten years must elapse before it could be known h many patients who had undergone treatment develo pernicious anæmia or other complications, as a res of radical technique. It was the poor who m frequently suffered from peptic ulcer, and the c dition required that the patient should have weeks of total disability and a year of partial ret to normal activity. An investigation of the ætiol of the ulcer, the mechanical or chemical agency work, any ulcer diathesis, syphilis, &c., would ena the disease rather than the ulcer to be treated. I infective, foci should be searched for and dealt w such as in the antra and dental areas. It important to avoid any routine rule-of-thu treatment.

Dr. Lyon and his colleagues had been impre with the frequency with which they found in abdominal lesions; indeed it was rare to find duod ulcer alone. There were few cases of cholecys which did not show some erosion, perhaps ac ulceration, in the duodenal aspect. During effort deal with ulcer one might be aggravating a ch cystitis. Speaking generally, Dr. Lyon said the met was found to be sound, and the results achieved f the use of the tube were superior to any they previously obtained. No suitable cases for treatment had, so far, required operation. Eff were made to get the patient to understand the na of his disease, and the tendency to relapse; it w necessary he should realise that a careful life he forth was required of him as in the case of a phthi patient.

Discussion.

The PRESIDENT narrated a case which had rec been under his care, that of a man aged 62, who admitted six months ago with an ulcer of the l

urvature, with the typical symptoms—pain, vomiting, nd loss of weight. There was a 12 years' history of rouble, and during the four months before coming to ospital his symptoms had been continuous. X ray xamination showed two ulcers, both on the lesser urvature. One of them had a crater towards the ylorus, the other being a small bud higher up. This, e thought, made it impossible to treat the case by adical measures. He therefore adopted feeding hrough the duodenal tube. He was fed through that, ith short interruptions, for ten weeks, and the ccessive skiagrams (shown on the screen) demonrated the gradual disappearance of the ulcer. From ie time of the institution of that treatment the man ost all his symptoms, and for four months after he ent out there had been no return of them; he mained in perfect health and was putting on weight.

Dr. ERNEST YOUNG said that for the last four and a alf years he had been using the duodenal tube for arious disorders of the gastro-intestinal tract, his 3 cases embracing gastric and duodenal ulcers, onic stomach, chronic colitis, nervous vomiting, and pe-worm trouble. The most important service of ie tube was in gastric and duodenal ulcer; in these nditions it had yielded him better results than had ny other form of medical treatment. He demonrated the apparatus he used. The tube was retained the patient for a period of one to three weeks. eding took place through the tube for 18 days, ght liquid feeds being given through it daily at o-hour intervals, which enabled adequate nourishent to be kept up. The object was to secure rest to e ulcerated site. The food could be varied, and if cessary an aperient could be given in the same way, a little morphia for sleeplessness. On the fourteenth y the patient was allowed out in the armchair for short time, and when the tube was withdrawn dinary solid food was at once resumed. Vegetable d other fibrous food should be first passed through sieve when using the tube, to avoid its blockage. e gave details of cases, and said that if there was a apse of the ulcerative condition after the medical atment, he refused to institute a second course, mmending, instead, operation.

Mr. A. J. WALTON said an important matter was e diagnosis of the presence of gall-stones. His perience was that the cholesterol found had always en deposited from a diseased gall-bladder, not by process of crystallisation. He had therefore been erested to hear Dr. Lyon say that crystals had en recovered by the tube in gall-stones. If that were epted, it would be a strong argument for medical her than surgical treatment. As to the surgical atment of ulcers, he thought every surgeon would ree that the surgical treatment of gastric and odenal ulcers must be only a temporary phase; to k out such a lesion was but a gross form of treatnt. He agreed that the results of it had been isfactory, but thought it was destined at a future e to be abandoned. It was difficult to determine at was the value of medical treatment, because it s necessary to ascertain what were the permanent ults of treatment. All persons could be relieved of ir ulcer symptoms by medical treatment, but how g would they last in the conditions they had to urn to? Very few could alter their occupations l conditions of life; therefore efforts must be made so alter the patient's physiological conditions that tendency to ulcération would be overcome. He ught that some of the forms of treatment now pted were too advanced, and he had taken a stand inst the ruthless performance of partial gastrectomy small ulcers of the lesser curvature. He favoured re local procedures. Only by following up the es could one determine accurately the end-results. instituted such a department at the London spital in 1919, and he gave the general statistics ich had resulted.

Dr. T. IZOD BENNETT was able to confirm all that Lyon said, from the diagnostic point of view, as the value of the duodenal tube, and particularly in case of gastric carcinoma. He had not had much experience of the tube for diagnosing lesions below the pylorus. Several cases had occurred in his own practice in which the tube enabled a diagnosis to be made of a pancreatic as opposed to a biliary lesion. The pylorus he looked upon as a valuable dam, separating the upper from the lower portions of the intestinal tract, and he always felt diffidence about penetrating that dam.

Dr. J. A. RYLE emphasised the importance of ascertaining as much as possible about normal conditions before drawing conclusions concerning the abnormal. Also it was very important to get the previous story of the particular ulcer in question, and the various treatments to which it had already been subjected. Diagnosis at a much earlier stage, which the profession as a whole should give more attention to, would render surgery far less necessary. Rarely did one see a case of gastric or duodenal ulcer with a history of less than six months.

Dr. STANLEY WYARD agreed with all that had been said in the discussion as to the value of medical treatment in the kind of cases under consideration, but he had been impressed by the risk of perforation or hæmorrhage during the progress of the medical treatment. For duodenal and gastric ulcer in the neighbourhood of the pylorus, therefore, he thought surgery offered the greater safety to the patient.

Dr. LYON replied in detail on the points raised.

ROYAL SOCIETY OF MEDICINE.

SECTION OF ELECTRO-THERAPEUTICS.

THE opening meeting of this Section was held on Oct. 21st, when Sir HENRY GAUVAIN gave an address on

Electro-therapeutics and the Future of Medicine.

He took his election to the presidency of the Section, he said, as a sign that members regarded the science of electrotherapy as embracing the full range of electromagnetic vibrations as a means of alleviating human suffering. Recent progress and achievement in this branch of scientific medicine compared favourably with that of any other. The developments which could be reasonably anticipated in the immediate and remote future made an irresistible appeal to the imagination. Few dreamers 100 years ago could have conceived that by submitting a subject to forces impalpable and invisible the inner structures of tissues and disease processes could be shown, rickety bones restored to normal, one person made bald, another enabled to grow luxurious locks. Imagination based on ascertained facts pointed the way to new discoveries. Where were the new forces leading us? Three practitioners of the specialty would indicate the advances which had recently taken place, dealing with the practical application of radiological methods to the diagnosis and treatment of two of the most serious afflictions of mankind—tuberculosis and cancer. The President thought it was imperative that all medical practitioners should have a perfect and thorough, if elementary, knowledge of the principles and practice of electrotherapy. He doubted whether its importance and potentialities were adequately recognised by the profession as a whole. The time had surely now come when systematic instruction in these methods should be given to all medical students. For this to be practicable, the status and influence of radiologists on hospital staffs should be further raised; they should rank equal to the physicians and surgeons, with their own wards, beds, and teaching facilities. The advance of this special branch in hospitals had been unduly delayed, to the detriment of the patient.

X Rays in Diagnosis and Treatment.

Dr. DUNHAM (Cincinnati, U.S.A.), a corresponding member, first paid a tribute to the good work done by the President in the field of phototherapy and electro-

therapeutics. The speaker's own work in this domain began in 1890 at St. George's Hospital, London, and he arrived at the view that if the radiologist wished to help the clinician he must translate X ray densities into terms of pathology. It was his experience that in order to do this with any accuracy, stereoscopic views must be taken. To understand the processes at work in diseased lungs, both a macroscopic and microscopic study must be made. Stereoscopy enabled the observer to detect the exact site of varying densities of shadow, and periodic skiagrams gave a clear idea of the progress of a given case. He illustrated this in a series of slides of several cases. Tuberculosis of the lung was clearly a disease of successive infections; one got well but another broke down. It was the business of the radiologist to keep a careful watch on these areas. In America there was so much anxiety to make the earliest possible diagnosis from the X ray plate that all did not realise the value of the rays as a guide to the continued care and treatment of the case. The worst thing the radiologist could do was to give to the clinician a haphazard guess. It was difficult to arrive at a diagnosis of miliary tuberculosis without a careful consideration of the history of the case. The clinician, on his part, should take the physical signs and translate them back to pathology, thus establishing common ground.

Dr. J. GRAVESEN (Denmark), who also was elected a corresponding member, gave an epidiascopic demonstration entitled

The Qualitative Radiological Diagnosis of Pulmonary Tuberculosis.

In recent years, he said, some very good results had been achieved in his clinic in cases of pulmonary tuberculosis. During the last 20 years, collapse therapy had developed to a very considerable extent; it was originally suggested in the form of artificial pneumothorax, and recently a chemo-specific remedy, sanocrysin, had greatly strengthened the means available for combating the disease. The two methods combined were responsible for a great reduction in the number of cases in which failure had to be confessed, and at the same time had considerably shortened the period of treatment in many instances. Sanocrysin was indicated in cases in which certain anatomical conditions were present—e.g., when the affection was of a fresh, exudative nature. Benefit could not be expected from it in all kinds of cases, and the failure to realise this was responsible for the diverse opinions which had been expressed about the remedy. In late cases, especially those showing cavitation and in which fibrosis had already occurred, the results from the use of sanocrysin were practically nil. Collapse therapy was applicable to the cases in which sanocrysin did not act. These facts rendered all the more necessary the careful use of every means towards a correct diagnosis of the actual type of case being dealt with. The diagnosis should not only include the degree of extension of the disease, it should give an impression of how the lungs looked, from the anatomical standpoint. X rays, stereoscopically used, gave the best help towards a qualitative diagnosis of this disease, and hence were the best guide to the right treatment in a given case. Dr. Gravesen showed an instructive series of slides, taken at different dates, to demonstrate successful results achieved by the two kinds of treatment in the types of case for which they were respectively suitable.

Cancer of the Breast.

Prof. HANS ISELIN (Bâle) contributed a paper on the treatment of cancer of the breast by X rays after operation. He said his efforts in this connexion were carried on from 1906 to 1913, and when Mr. Sampson Handley said he had obtained no very successful results in the treatment of cancer of the breast by X rays, the speaker had been for five years treating in this way inoperable primary tumours and inoperable recurrent growths. In the application of the rays to small operable recurrences and gland metastases he had already been obtaining go results. The most dangerous form of cancer, considered, was scirrhus, and the least dangerous w medullary carcinoma. The best results obtained fr operation were in a series of 62 cases, in which had 48 per cent. of cures. Obviously surgeons h not been satisfied with the cures they had be securing, seeing that they were anxious to ins that an arbitrary period of three years' freed from the disease should entitle them to make cla to a lasting cure. Only slowly did X ray treatme find a place in surgical practice. He had hims observed fatal recurrence of malignant disease af eight years, even after 16 years immunity. Ev with the help of X rays a lasting cure of cancer of t breast was relatively rare. Heidenhain had sho that in order to remove not only the tumour b also the cancerous lymph tracts and glands, a radi operation was necessary. The spread of the can in the direction of the normal lymph stream was o the beginning of the trouble. The writer of the pa did not remove the pectoral muscles in relativ hopeful cases, but confined his attention to extens removal of the fascia. Cancer of the breast was, declared, very suitable for X ray treatment. As growth might spread in all directions, mere irradiat of the affected breast was not sufficient, it must supplemented by prophylactic treatment of the wh area. But he had never been a believer in intens treatment by the rays, and did not employ in cases under consideration what was known as carcinoma dose. He had applied X rays in putrefy cancer, as a cautery, without using a filter. whole of the cancerous area, so far as it could be se was removed by operation and the walls afterwa exposed to X rays; the wound was covered w skin flaps. The patient died shortly afterwa however, from cellulitis of the floor of the mou Autopsy showed there was no cancer remaining, the irradiation had acted badly on the patient unduly lowering her vitality. As soon as a pati was somewhat rested after the operation, X applications were commenced, even as early as first week. After the exposures ceased the pat was still kept under observation. The general c dition should be carefully considered before decid on irradiation. The use of the aluminium filter no longer regarded as old-fashioned, and was ag coming into prominence. In conclusion, Prof. Is said irradiation had improved the bad prognosi cancer of the breast by 50 per cent.

On the motion of Sir PERCIVAL HARTLEY, secon by Dr. CLIVE RIVIERE, a cordial vote of thanks accorded to the speakers.

LONDON CLINICAL SOCIETY.

EXHIBITION OF CASES AND SPECIMENS.

A CLINICAL meeting of this Society took plac Oct. 20th at the London Temperance Hosp when the chair was occupied by Mr. HERE PATERSON, the President.

A Case of Aneurysm.

Dr. P. K. BYRNE showed a man, aged 63, complained that for some time he had been sho breath on moderate exertion. He was somev stout, and had at first attributed his breathless to that fact. Two months ago a severe pain on left side woke him up, and he feared he was a to die. There had not been a repetition of severe pain. However, his panel doctor, on consulted, ordered him to take a holiday, an that appeared not to have benefited him he can the hospital. He was found to have marked puls on the left side of the chest, and a definite tra tug. There was much difference of opinion a the staff as to the condition of the vocal cords. pulse on the left side was less than on the Wassermann was positive. Since iodide of potas had been commenced there was much improve

Dr. H. H. SANGUINETTI raised the question whether the more modern and thorough methods of treating syphilis had modified for the better the prognosis of aneurysm, or was it still found that cases of the kind inevitably came to a tragic termination?

Dr. DOROTHY LOGAN related a case she saw some time ago in which a gumma in front of the aorta had eroded through the sternum and weakened the aortic wall, so producing what was practically an aneurysm. Active treatment resulted in a very satisfactory clearing up of the condition, and the threatened complete break-through was thus averted.

Dr. E. G. FRENCH said he thought there was no doubt that the modern treatment of syphilis did improve cases of aneurysm. He treated a number in the Army, with beneficial results, and he had had several cases in private of which he could say the same. A particular case was that of an inspector of police who had a marked aneurysm. After three courses of antisyphilitic treatment he got remarkably well, and was able to go up and down stairs. Modern treatment should always be given in cardiovascular cases in moderate doses. Many seemed afraid to give this treatment, but he was sure it was safe.

The PRESIDENT remarked that when once the artery had sustained a certain degree of damage no amount of treatment would make a success of the case, as destroyed tissue could not be replaced, and dilatation would continue.

Dr. MATHER CORDINER showed a number of skiagrams bearing on the subject of the

Radiological Diagnosis of Chronic Appendicitis.

He said he had had a number of cases of appendicitis in which the clinical signs and symptoms did not point to the appendix as the seat of the trouble. In four instances the symptoms seemed to point clearly to gall-stones, or cholecystitis; radiograms, however, clearly indicated that the appendix was diseased. In those cases the gall-bladder seemed to have been secondarily infected from the appendix, so setting up a catarrhal cholecystitis. In three cases the appendix was found in the region of the gall-bladder, and there was an undescended cæcum. One skiagram showed an undescended cæcum, and an appendix on the left side of the spinal column. Another showed calcareous infiltration of ileocolic glands. He had found this condition in 15 per cent. of his cases of appendicitis. In this condition the seat of tenderness was not at McBurney's spot. In some cases of appendicitis the stomach was similar to that seen in association with duodenal ulcer; it showed hyperperistalsis.

Mr. H. P. WINSBURY WHITE asked what symptoms Dr. Cordiner found to be associated with calcareous ileocæcal glands. Patients complained of pains which were very suggestive of colic, and it was difficult to know whether the patient had intestinal or renal colic. The clinical findings associated with such a pathological condition of glands were very obscure.

Dr. A. J. CLARKE asked as to the history usually given by patients with this kind of appendicitis. Had they had dyspeptic symptoms for some time previously, and developed appendicitis on those?

The PRESIDENT said he had found that children who had recurrent attacks of vomiting without pain were very apt, in later life, to develop either appendicitis or gall-stones; the latter was often an effect secondary to the diseased appendix. He did not agree with the exhibitor as to the kind of stomach associated with chronic appendicitis: what he had found in these cases was a dilated badly contracting stomach. Of course the abdomen should not be opened unless the X ray picture confirmed the opinion already formed.

Dr. CORDINER, in reply, said that in most of the cases there was a sudden attack of uncontrollable vomiting. All the symptoms cleared up after the appendix was removed. The position of the appendix varied in different persons, and radiography was necessary to a correct location.

Dr. FRENCH showed two cases of

Chancre of the Lip.

The first case was that of a woman, who was kissed by a man, and three weeks afterwards a sore appeared on her lower lip. When she came to hospital the submental glands were marked, and the chancre had a glazed appearance. Mr. Sanguinetti confirmed the diagnosis. She was given ten weekly injections of 0·45 g. of neokharsivan, increased to 0·6 g. and a gramme of mercury cream. The chancre cleared up in three weeks, and the Wassermann had become negative. The second young woman had a chancre of the upper lip, and she said she had been to a dance and her partner bit her upper lip. On that site she developed a chancre. She had had only a week of treatment, yet there was but little left of the chancre at the time the case was exhibited, but there was typical ulceration of the fauces. She was being kept on 0·45 g. injections and mercury. He had found that extragenital chancres were accompanied by more severe systemic disturbance than genital ones: possibly the inguinal glands had more power to protect the system than had the submental. A third patient, a married woman, had, when seen, already developed a secondary papular rash.

If cases of syphilis were seen early, perhaps one course, such as that he outlined, would cure the patient, but a Wassermann test should be carried out every two months. If it continued to be negative for a year, the patient could be declared safe in the matter of infection, and could, of course, be allowed to marry. When secondaries were present, however, the patient had severe systemic disease, and more prolonged treatment would be required than in such cases as the first two. In the case of women, should they become pregnant after having had syphilis, even though the Wassermann had persistently remained negative, it was wise to give courses of "606" until term, as otherwise they had proved capable of producing a syphilitic infant. It was not easy to say why this was so.

Case of Swelling of the Breast.

Mr. A. D. JONES showed, for the President, a woman, aged 69, who complained of a swelling in the left breast, which she said she had noticed three weeks ago for the first time. It had been discharging for a week, she was losing weight, and there was some pain in the swelling. The breast was definitely cystic, but deeper an indurated mass could be felt. Operation was proposed, but had been deferred because she had extensive dermatitis. No glands could be felt in the axilla. It had been suggested that the case might be one of Brodie's sero-cystic tumour, but Mr. Jones inclined to the view that the condition was malignant—a carcinoma which was breaking down and discharging—though the absence of palpable glands was somewhat against this. He did not doubt that the swelling had been present longer than the woman stated. The right breast was normal. A dermatologist had given his opinion that the lesion was not a gumma.

Mr. SANGUINETTI suggested that syphilis of the breast might be more common than was usually supposed. He did not regard the present case as one of carcinoma.

The PRESIDENT said that the only specimen of gumma of the breast in the museum of the Temperance Hospital had been regarded for some time as sarcoma. It was a very hard growth, it had grown rapidly, and there were no enlarged glands. Brodie's sero-cystic disease was, of course, malignant. It was unusual to find sarcoma of the size in this woman with no glands, and breaking down as this was. He could not feel positive it was not gumma.

Hydronephrosis in a Child.

Mr. WINSBURY WHITE showed a specimen of the left kidney with the whole of the ureter attached, which was removed from a boy aged 2½ years. The ureter was dilated and there was some dilatation of the kidney; a stricture was seen at the lower end of

the ureter, and another stricture at the top. The mother brought the child to the hospital because on several occasions there was blood in the urine. At first he had been unable to ascertain by the cystoscope which kidney the blood was coming from, but ultimately it was seen to arise from the left ureter. The passage of a ureteric catheter under the guidance of X rays showed that the condition was a megalo-ureter with hydronephrosis. A pyelogram showed that the fellow kidney was normal, and he then removed the offending kidney; it was impossible to do a plastic operation. The child did very well, and it had now lost its pyuria.

JAMES MACKENZIE INSTITUTE FOR CLINICAL RESEARCH.

ON Oct. 11th Dr. JOHN BOYD ORR read a paper on the

Influence of Diet on the Physiology of the Stomach.

He pointed out that in much of the earlier work there had been a tendency to limit attention to phenomena occurring in the stomach as if it were a semi-independent organ. The work of the past few years, however, had emphasised the close physiological relationship and interdependence between the stomach and the other parts of the alimentary system. A derangement of function originating in any part of the canal was likely to disturb the normal gastric activities, and many clinical symptoms located in, or at least referred to the stomach, had their origin elsewhere.

Discussing the function of sensation, Dr. Orr distinguished between hunger and appetite. The former could be correlated with the contractions of the gastric muscle, but the latter depended not only upon the tonus of the muscle, but also upon stimuli received from sight, smell, taste, and memory. Instances were given of perverted appetites in animals, and it was shown that these tended to occur on deficiency diets, and that often the abnormal substance craved for was rich in the substances in which the diet was deficient. Hunger, it was suggested, might indicate a demand for food in quantity, whereas appetite was to some extent an indication for food with certain qualities. Most modern work indicated that perverted secretion, or excess or deficiency of gastric juice, was of less importance in the ætiology of disease than had been formerly supposed. He regarded movement as the function which played the most important part in the maintenance of health and the causation of disease. Recent investigations had shown that the conception of the acid-alkali control of the pylorus was untenable. The movements of the stomach, including those of the pylorus, were of the same nature as those of the rest of the intestine, following the law enunciated by Bayliss and Starling. In health the pylorus was seldom if ever completely occluded. Whilst the general movement of the food was onward from the stomach to the intestine, there was a normal tidal flow between the duodenum and the stomach, and it was this tidal flow which regulated acidity in the latter organ. The chief factors which normally influenced movement were diet and the emotions. Dr. Orr quoted experiments showing that the composition of the diet had both an immediate and a remote effect upon movement, the remote effect being produced by an alteration in the circulating fluids of the body. One of the most interesting results of experiments with deficient diets was not the gross disturbances in the body which followed their use, but the disturbance of intestinal movement, which led to lesions such as inflammation and ulceration, especially in the pyloric and cæcal regions. Dr. Orr believed that emotions such as fear, anxiety, and anger, which stimulated the sympathetic, causing inhibition of movement and contraction of sphincters in the intestine, were an important factor in producing stasis in the lower part of the tract, and that this stasis was often the beginning of permanent lesions.

Reviews and Notices of Books.

RECENT ADVANCES IN OPHTHALMOLOGY.

By W. STEWART DUKE-ELDER, M.D., F.R.C.S. Assistant Ophthalmic Surgeon, St. George's Hospital. London: J. and A. Churchill. 192[illegible]. Pp. 343. 12*s.* 6*d.*

THIS book will be of great service to those wh[illegible] already have a competent knowledge of ophthalm[illegible] science, but have not had time of late years to kee[illegible] themselves up with the latest investigations an[illegible] their applications to practice. Those parts of th[illegible] subject, such as refraction, which may be considere[illegible] settled, are not touched on at all, and the boo[illegible] conforms strictly to its title. First we have a discu[illegible] sion on the nature of light according to the mo[illegible] recent theories, its transmission through the ey[illegible] its absorption by the different media, and its biologic[illegible] action upon them. As to the action of light upon th[illegible] retina itself, and its transformation into nervo[illegible] impulses, there is as yet very little real knowled[illegible] though theories are rife. The author thinks th[illegible] until a more adequate foundation of experiment[illegible] evidence is available, these theories are of litt[illegible] scientific value. There is, however, general agreeme[illegible] that the chemical action of light on the visual purp[illegible] is an essential to the phenomenon of vision and[illegible] proponderance of agreement as to the existence [illegible] the retina of a double mechanism one called "ph[illegible] topic" for the light-adapted eye, depending upon t[illegible] cones, the other "scotopic" for the dark-adapt[illegible] eye, depending upon the rods. The former is co[illegible] cerned with what is termed visual acuity, the latter[illegible] characterised by its sensitiveness to stimuli of ve[illegible] low intensity.

The second chapter deals with the theories [illegible] accommodation. The classical one of Helmho[illegible] appears to hold its own, but requires modificatio[illegible], the most important being that of Fincham, wh[illegible] points out the prominence of the part played by t[illegible] lens-capsule. If his facts are confirmed, the argume[illegible] for the rival theory of Tscherning lose their for[illegible]. The more recent theory of Thomson Henderson [illegible] the part played by the sympathetic nerve is sever[illegible] dealt with. The cause and differentiation of phys[illegible]-logical and pathological halos are also explained.

The next chapter deals with the embryology [illegible] the human eye, and the congenital defects that c[illegible] only be understood by reference to it. In t[illegible] connexion reference is made to a forthcoming w[illegible] on the subject by Miss Ida C. Mann. Chapter [illegible] deals with new methods of diagnosis. The slit-la[illegible] is undoubtedly the most important of these, but t[illegible] must be considered as an adjunct to the older meth[illegible] of histology and clinical study, not as displac[illegible] them. The chief new knowledge which it has int[illegible]-duced is as to the structure of the normal and disea[illegible] lens. Koeppe's proposal to extend the principle [illegible] means of the contact glass to a microscopical exami[illegible]-tion of the living fundus is not considered of m[illegible] practical value. The methods and advantages [illegible] examination of the fundus with a red-free light [illegible] given, and an instrument called the gonioscope [illegible] described which renders possible the examinat[illegible] of the angle of the anterior chamber under a mag[illegible]-fication of 32 diameters.

The chapter on the general physiology of the [illegible] deals with intraocular pressure and the nature of [illegible] intraocular fluids, abstruse subjects on which th[illegible] is still much discussion to which the author [illegible] himself made important contributions. The subj[illegible] dealt with under the heading, Diseases of the E[illegible], include high blood pressure and arteriosclero[illegible], glaucoma, cataract, and sympathetic disease. A practical point in the diagnosis of glaucoma is a d[illegible] in the development of dark adaptation and a dul[illegible] to the sensitiveness for dim light, while the sens[illegible] light difference remains unaffected. As to catar[illegible], the slit-lamp has thrown much light on the var[illegible] forms which it assumes, but there is little adva[illegible]

in the direction of explaining its ultimate causes or its prevention by medical treatment. Permanent opacities are due to coagulation of the proteins of the lens, but what causes this coagulation has yet to be discovered. When once the process has occurred nothing except removal by operation can restore transparency. Under the heading Sympathetic Ophthalmitis the newer methods of diagnosis, or assistance to diagnosis, are mentioned—Harrison Butler's slit-lamp test and the differential blood count; also some space is devoted to the anaphylactic theory of A. C. Woods. Coming to therapeutics, considerable interest attaches to the methods and results of ultra-violet phototherapy, on which the author is himself an expert, and which has found its chief use in obstinate cases of phlyctenular disease. The last chapter is concerned with the neurology of the visual paths and centres, the oculo-motor system, the trigeminal nerve, the pathological lesions in herpes, and finishes with an abstract of Sir J. H. Parsons's "Introduction to the Theory of Perception."

The work, though of modest proportions, is no light reading even for the trained ophthalmic surgeon. He will find much in it to stimulate thought, and the bibliographies which are appended to each chapter will help in further study.

SYMPTOMATOLOGY.

Klinische Symptomatologie Innerer Krankheiten. Krankheitssymptome (mit Ausnahme der Schmerzempfindungen). Second edition. By Prof. Dr. NORBERT ORTNER, University of Vienna. Berlin: Urban and Schwarzenberg. Vol. II. Pp. 330. M.15.

THIS is the second of three volumes, the first being divided into two parts dealing with abdominal pain and body pain respectively, while the third volume describes general clinical symptoms and differential diagnosis. The second volume deals with well-known symptoms common to many diseases, such as cachexia, loss of appetite, coma, diarrhœa, cough, dyspnœa, jaundice, dyspepsia, tachycardia. Only symptoms not associated with pain are considered. Each symptom is described in a separate chapter, and the various diseases in which it occurs are mentioned, together with the chief points of connexion between the symptom and the disease. Besides being described in the text, the disease is also referred to in the margin of the page, so that it is possible at a glance to see what diseases are associated with the symptom under discussion. The volume should be of real use to the physician in assessing the diagnostic value of a particular symptom.

EAR, NOSE, AND THROAT.

The Ear, Nose, and Throat in General Practice. By D. A. CROW, M.B., Ch.B. Edin., Oto-laryngologist to the Royal Sussex County Hospital and Sussex Throat and Ear Hospital. Oxford Medical Publications. London: Humphrey Milford, Oxford University Press. 1927. With 2 coloured plates. Pp. 160. 10*s.* 6*d.*

THE subtitle of this little book is "an informal guide to the main principles," and the author's intention is the laudable one of stimulating the interest of the general practitioner in those diseases of the ear, nose, and throat which are commonly encountered in his work. Dr. Crow rightly lays great stress on the prompt performance of paracentesis of the drum in cases of acute otitis, and considers that he will not have written in vain if, as a result, a single practitioner proceeds to incise a single eardrum. In the attempt to avoid wearisome detail, perhaps too much has been omitted; there is no description of either Rinne's or Weber's test, and no account of the use of the Siegle speculum. The acute ear is well described from the practical point of view, and two important points are emphasised—namely, that a mastoiditis exists concurrently with almost every case of acute otitis, and that the antrum should be drained when discharge persists undiminished, though many will consider the time-limit of ten days to be too short. The author's method has been to describe some of the commoner affections, and to group the omissions into a final miscellaneous chapter. The notes in this chapter are mostly too brief to be of much value, and they are badly arranged—for instance, a very short note on laryngectomy is sandwiched between one on tinnitus and one on vertigo, and Vincent's angina between this and aural cerumen.

The book is brightly and vigorously written, and will be useful. It cannot take the place of a text-book, even for the practitioner who desires a minimum of knowledge of these special subjects.

DISEASES OF THE INTESTINES.

By A. P. CAWADIAS, M.D. Paris, M.R.C.P., Senior Physician, Evangelismos Hospital, Athens. London: Baillière, Tindall and Cox. 1927. Pp. 300. 16*s.*

THE student who is unfamiliar with French, Italian, or Spanish medical literature will find pleasure and interest in this volume. He will discover much that is learned, much that is imaginative, and not a little that is ill-digested. But when full allowance has been made for the great difficulties that confront any author writing in a foreign language, it will be agreed that Dr. Cawadias has produced a work scientifically conceived and well illustrated, and requiring only drastic editing to make it a real addition to our literature. The bibliography is an excellent and original one.

PATHOLOGY OF THE NEW-BORN.

Biologie und Pathologie des Weibes. Edited by JOSEF HALBAN and LUDWIG SEITZ. Section 37. Berlin and Vienna: Urban and Schwarzenberg. 1927. Pp. 314. M.22.

WITH the exception of a short article by Prof. M. Stickel on asepsis in obstetrics, this section of Halban and Seitz's comprehensive work is devoted to the new-born infant. It consists of two parts, on the physiology and the pathology of the new-born, both by Prof. A. Reuss, of Vienna. The first part describes in considerable detail the peculiarities, anatomical and physiological, of the infant at and after birth, paying special attention to the stage of development reached by the various systems, and the alterations in the blood and viscera which accompany the establishment of independent existence. The second and larger part gives a comprehensive, and at the same time readable, account of clinical disorders met with in the first weeks of life, as well as of congenital malformations. It is fully up to date, and contains much well-chosen material which has not as yet found its way into most text-books. This is particularly exemplified by the account of intracerebral birth hæmorrhage, and its immediate effects, based on the work carried out at Frankfort by one of the editors (Dr. Seitz) and P. Schwartz, and containing illustrations drawn from their works. The whole volume is profusely illustrated, and an exhaustive bibliography renders it a valuable book of reference.

TEETH AND HEALTH.

By J. SIM WALLACE, D.Sc., M.D., L.D.S., Lecturer on Preventive Dentistry, King's College Hospital. London: Faber and Gwyer. Pp. 214. 3*s.* 6*d.*

THIS book, which is one of a series of modern health books, under the general editorship of Prof. Fraser Harris, intended for the general public, is an excellent example of what such a book should be. Clearly written, in language sufficiently free from technical phrases to be easily understood, it sums up the present state of our knowledge, and indicates the broad lines of preventive dentistry. Dr. Wallace has himself made notable contributions to the ætiology and prevention of dental disease, and, as might be expected, the views with which his name is associated receive full discussion here. If we have a criticism to offer, it is that perhaps he over-emphasises his own views

and does not state sufficiently the views of other workers which do not coincide with his own. Those familiar with dental literature are aware that Dr. Wallace is opposed to the view that defective structure of the teeth is a factor of importance in dental caries. In a book designed for general reading we feel that it would have been wise to mention other views which are held to shed light on the prevalence of caries, and to offer a possible way of diminishing its incidence. But this one-sided attitude does not detract seriously from the merits of a book which is well written, well produced, and cheap. A few more illustrations might with advantage be added in future editions.

DIAGNOSIS OF PANCREATIC DISEASE.

By ROBERT COOPE, M.D., M.R.C.P., Senior Assistant Physician, Royal Southern Hospital, Liverpool. London: Humphrey Milford, Oxford University Press. 1927. Pp. 112. 5s.

THE Rogers prize essay of the University of London is reprinted in this volume. The ætiology, symptomatology, and clinical findings in pancreatic disease are fully and logically described. The laboratory findings are discussed with critical acumen, and the book will be found useful by all interested in the subject.

Messrs. Jackson, Wylie and Co., Glasgow, have published in pamphlet form, as No. IX. of Glasgow University Publications, the Macewen Memorial lecture on the Meningiomas, delivered in Glasgow last June by Dr. Harvey Cushing, professor of surgery in Harvard University. The latter part of this lecture appeared in THE LANCET of June 25th, 1927; the earlier part, which now appears for the first time, deals with the traditions of the Glagsow School of Surgery and describes certain of the hitherto inoperable meningiomas arising from the floor of the anterior cranial chamber.

JOURNALS

ARCHIVES OF NEUROLOGY AND PSYCHIATRY. Vol. IX., 1927. Edited by FREDERICK L. GOLLA, F.R.C.P., M.B. Oxf. London: P. S. King and Son, Ltd. 1927. 15s.—This year's Archives are prefaced by an obituary of Sir Frederick Mott, reprinted from THE LANCET (1926, i., 1228), a bibliography of his works, and his Harveian Oration for 1925; it also contains three of his latest studies—those on the larynx of the Siamang Gibbon, the adrenals in dementia præcox, and the pituitary gland in asylum and hospital patients. All the 30 papers in the volume have appeared in various journals during the last three years, and all represent the patient work of first-class investigators into the fundamentals of insanity. Three of them, one of which appeared in THE LANCET for April 17th, 1926, deal with encephalitis lethargica; Dr. P. K. McCowan writing, with others, on the variations in the blood picture and the effect of hyoscine on the carbohydrate metabolism of patients; and Dr. A. Hancock on changes in the cerebro-spinal fluid. Dr. Isabella Robertson contributes two articles, and Dr. A. A. Petrie one, on circulatory abnormalities in psychotic patients, particularly the hæmoclastic crisis, a reaction to the injection of milk: this promises to be of diagnostic value in some of the psychoses, especially dementia præcox. Neurology is represented by the work of the editor on variations in the time relations of tendon reflexes, and on the electrical recording of voluntary movement, and by that of Dr. McCowan on the physico-psycho-galvanic reflex. The treatment of dementia paralytica by malaria is discussed in a report from the research team of the London County Mental Hospitals, the headquarters of which are now at the Maudsley Hospital, under the new organisation (described by the editor in a foreword to the volume). The value of tryparsamide in the same disease appears from the account given by Dr. W. S. Dawson of his results; this appeared in our issue of May 23rd, 1925. Dr. Dawson also contributes, with Dr. Mary Barkas, a paper on the somnifen treatment of the psychoses; and Dr. Barkas writes with equal lucidity and knowledge on the contribution of psycho-analysis to the treatment of mental patients, tonic spasm of the eyes in conjugate deviation, and the significance of social conditions in the ætiology of mental disorder. Dr. McCowan, in addition to the articles already mentioned, reports four cases of pellagra, and contributes a study on the circumvention of the typhoid carrier. Mr. S. A. Mann, in his paper on the lævulose test, indicates the necessity for eliminating a bewildering number of factors unconnected with hepatic insufficiency before the finding can be relied on as an aid to diagnosis, and casts doubt on the results of former investigators. Other contributions deal with the neutral sulphur excretion after the ingestion by dementia præcox patients of sodium thiosulphate, the cerebro-spinal cholesterol in certain mental diseases; and an account of a case of herpes apparently due to invasion of the ganglia by round-cell sarcoma. The work of the inquirer would be facilitated if this admirable collection were paged consecutively.

JOURNAL OF INDUSTRIAL HYGIENE. September.—Two long and useful articles appear in this issue. The first, on health hazards in the cotton industry, is the first instalment of Dr. W. F. Dearden's Milroy Lectures (1927). Mortality figures are given showing that the health of cotton operatives on the whole is but slightly below that of the standard for the kingdom; but certain groups—e.g., those opening the bales of cotton and employed at carding engines—are found with high mortality from respiratory diseases, particularly bronchitis. Estimates of the sickness incidence by Dr. Dearden tend to substantiate these figures. The records of the medical officers of health for Blackburn convey the impression that weaving must be considered a healthful occupation particularly for women. Much discussion and research has been directed to the effect of temperature and humidity upon cotton operatives, and the whole of the subject is completely summarised with a description of the processes concerned in the manufacture of cotton goods from spinning to weaving. As the temperature rises above 72° F. the thread benefits by a rise in temperature which is physiological and disadvantageous. Cotton operatives are said to enjoy freedom from the ill-effects of high blood pressure, this freedom being ascribed to removal of waste products of metabolism by sweating. A number of observations are given to establish what are the atmospheric conditions normally existing in the mill and methods are described by which these conditions can be ameliorated without interfering with production.—The second article is based on a clinical study of the effects of mine gases. The writer, R. Herndon, had under observation 145 men who's disability was ascribed to exposure to abnormal conditions of the air in coal-mines. Frequently the disability was due to concurrent disease, while the condition most often causing trouble was ascribed to stagnant air. Bad air—i.e., air containing poisonous gas—was less frequently to blame. Carbon monoxide was the most common gas causing disability. A valuable summary of knowledge with regard to carbon monoxide poisoning is given, and we are reminded that plants and insects (which have no hæmoglobin) are essentially unaffected by CO, while brain cells grow profusely in an atmosphere of 79 per cent. carbon monoxide and 21 per cent. oxygen. Carbon monoxide acts by depriving the tissues of oxygen. All symptoms can be explained by this action, particularly since the cerebral cells exhibit great susceptibility to lack of oxygen. Indeed, nerve cells after temporary deprivation of oxygen may never thoroughly recover. Other gases occurring in mines such as CO_2 and methane are of little importance, but occasional nitrous fumes arising from incompletely detonated explosives may cause fatal accidents. Interesting histories are given of 11 typical cases seen by the author.

THE LANCET.

LONDON: SATURDAY, OCTOBER 29, 1927.

CHRONIC GASTRITIS.

To many practitioners gastritis is a disease occurring with great frequency amongst their patients, whilst others look upon it as so rare as to be almost non-existent. It is true that there is no text-book on medicine published in any civilised country which does not devote a considerable amount of space to describing the condition, but on the other hand these statements do little to enable even the experienced clinician to diagnose it with any certainty. Clearly, then, gastritis is an obscure disease, and the more interest therefore attaches to Prof. KNUD FABER'S Schorstein Lecture published at length in our present issue. Prof. FABER is an authority on this subject, to which he has devoted peculiar attention, and few can read his lecture without increasing their knowledge and finding some fresh stimulus to observation.

Gastric analysis, when first introduced, turned the attention of the medical world to the outstanding disturbances of secretion—hyperchlorhydria and anacidity. But these, as Prof. FABER points out in his introductory paragraphs, cannot properly be regarded as diseases. They are at most symptomatic, and he proceeds to discuss the relation of each to the actual disease—namely, gastritis. In earlier times the term gastritis was equivalent to "catarrhal inflammation of the stomach," but to-day it is recognised that besides damage to the surface of the organ by various noxious agents, it is possible, and very likely easy, for the deeper layers of the stomach to be injured by toxic agents arriving by way of its blood-vessels. Thus the gastric secretion may be impaired by diffuse lesions of the glandular parenchyma or ulcerations of the surface which take origin in necroses beginning in the deeper layers. Prof. FABER for this reason believes that the stomach undergoes pathological changes akin to those seen in the inflamed liver or kidney. His views on the pathogenesis of achylia gastrica are both interesting and original. He holds that achylia is always the result of chronic gastritis, which in its turn is often due to widespread and deep-seated hæmatogenous inflammation, following an infectious fever during childhood or even in early infancy. In extensive histological studies, carried out with special precautions to avoid the failures associated with rapid post-mortem disintegration of the gastric mucosa, he has observed inflammatory changes in the stomach at all ages and of sufficient degree to support his theory about their effect on secretion. Again, he has been able to observe achylia, severe in degree but temporary in its manifestations, occurring especially amongst children recovering from severe infection. In a statistical study embracing many hundreds of cases he demonstrates that achylia becomes much more common as age advances, and this he considers evidence in favour of his view that it is a phenomenon secondary to infectious disturbance. He attributes our general lack of knowledge of the subject to the fact that gastritis is essentially "silent"; it is well known, for instance, that alcoholic gastritis—which he calls "the one form of the disease commonly due to agents acting on the surface of the stomach"—can produce violent symptoms for a time, and then leave the patient with complete achylia, yet apparently in perfect health. Gastric digestion can be completely replaced by pancreatic digestion, and only the stomach tube or histological section may demonstrate the chronic inflammatory changes still present in the stomach. The grave sequelæ of achylia are indirect and tend to show themselves outside the intestinal tract, the withdrawal of the disinfecting properties of hydrochloric acid occasionally leading to diarrhœa and anæmia.

The second part of the Schorstein Lecture is concerned with the relation between hyperacid secretion and gastric ulcer. The syndrome of REICHMANN, which consisted of hyperacid gastric secretion associated with post-prandial pain, is now universally recognised as a usual accompaniment of ulceration of the stomach or duodenum, but, as Prof. FABER points out, it has lately become more and more evident that the "syndrome pylorique" described by G. SOUPAULT and ALBERT MATHIEU is not invariably associated with an ulcerative lesion, and such cases, in his opinion, are usually the result of juxta-pyloric gastritis. This view he apparently bases on histological material obtained at operation. Macroscopic examination gives little evidence, but the microscope has revealed much inflammatory change amidst the normal material. Wherever there has been actual ulceration, says Prof. FABER, the other changes are to be found, and from these observations he concludes that the oldest hypothesis concerning the pathogenesis of gastric ulcer, that advanced by CRUVEILHIER, is once more coming to the front—namely, that gastritis is the preceding cause of gastric ulcer, and that ulcerative pyloric gastritis is the cause of all juxta-pyloric ulcers.

There is much that is controversial in the lecture. Prof. FABER seems, for example, to reject altogether the embolic view of the origin of peptic ulcer, although it is not wholly out of harmony with his general opinions on the frequency and importance of inflammatory gastric lesions. But the challenging nature of his views in itself gives them importance, and without expressing strong approval or disapproval of them we take pleasure in setting them fully before our readers.

THE HEREDITY OF CANCER.

THE question whether cancer is hereditary is of manifold importance. The clinical evidence in the human subject gives no convincing indication of the disease being inherited. Occasionally cases are reported where several members of a family have succumbed to the disease; but the rarity of such an incidence as compared with the large number of deaths from cancer may be taken as an indication that in man heredity does not play a significant part in the genesis of cancer. Life insurance companies, which have a financial interest in the matter, do not attach any importance to a cancerous ancestry.

The evidence from man, however, does not dispose of the problem, for in man the ancestry, from the point of view of the incidence of cancer, is always mixed. This difficulty is not present in breeding experiments among the lower animals; and in order to obtain evidence of the appropriate sort experiments in inbreeding among mice of known cancerous ancestry have been performed. The first observation along these lines by E. E. TYZZER and by J. A. MURRAY gave a clear indication that under exceptional conditions a

hereditary factor exists which is probably of the nature of a predisposition to cancer. The most extensive observations dealing with this point are the breeding experiments of MAUD SLYE, continued since 1914. These laborious and careful observations, recorded in a large number of papers, have been interpreted by Miss SLYE as demonstrating that cancer is transmitted by inheritance along Mendelian lines. Dr. E. A. COCKAYNE now points out[1] several fallacies which invalidate Miss SLYE's conclusions. He agrees that both in mice and in men there are disorders of growth which are inherited and on the basis of which cancer may develop. But he continues, "most of these disorders of growth are rare, and it seems unlikely that the proportion of cancer arising from them to the total number of cancers in the general population can be a high one, but other unrecognised disorders of a similar kind may be more numerous than is at present suspected, and until their existence has been proved or disproved, their importance in the production of cancer cannot be assessed. . . . Experiments on animals show that an inherent cell defect is not necessary for the production of malignant growths. . . . There may be an inherited susceptibility to cancer in normal tissues, and in the case of some animals there is already experimental evidence to this effect, but at present it is too scanty and too incomplete for it to be reviewed with advantage. Whether it plays a part in the case of human cancer, and if so, how great a part it plays, are questions still more problematical and still less ripe for discussion." The paper, which contains a number of interesting data, is closely reasoned and will repay careful study.

We take this opportunity of drawing attention to the *Cancer Review* now completing the second year of its existence. This journal, which is published under the auspices of the British Empire Cancer Campaign, presents to the reader a critical commentary on the current literature of cancer by means of abstracts of the more important papers and by occasional reviews on selected subjects. The editors, who are experts in the various branches of cancer research, are also the abstractors. A careful annual index adds greatly to the value of the journal. It is difficult for the non-expert to find his way through the literature on cancer, not merely because it is very extensive, but because so little of it is good and reliable. Much of it is so highly technical that only those engaged in similar work and conversant with the technique can express an opinion on its value. By serving as a sane and reliable guide the *Cancer Review* is fulfilling a useful and important function. Maintained at its present level it will become the standard work of reference on cancer.

THE PANEL DOCTOR AND THE MINISTRY.

LAST year's annual conference of Local Medical and Panel Committees empowered the Insurance Acts Committee to negotiate with the Minister of Health on certain proposals to modify disciplinary procedure under the Acts. This procedure has caused alarm, friction, and mistrust ever since the Ministry replaced the Health Commissioners. Certain decisions made by the Minister have aroused strong demands for a direct appeal to the High Court against his judgments, and whilst the Insurance Acts Committee and the majority of the conference recognised that there were objections to this proposal, it was obvious that some safeguard against arbitrary action by the executive was urgently needed. This feeling was reflected in a limited resolution by the 1926 conference that there ought to be an appeal to the courts on the grounds of irregular procedure, or alleged vindictive penalty, and where a common law action by the patient would normally lie, whilst the question of appeal in other cases was left to negotiation between the Insurance Acts Committee and the Ministry.

After keen debate at its meeting last week the Panel Conference agreed to give three years' trial to a scheme summarised by Dr. H. G. DAIN, Chairman of the Committee, in a speech which we report on p. 933. The essence of this scheme is to provide representation of the panel doctor on every body which considers complaints against him. One of the chief grievances of the practitioner has been that the progress of every case, between the hearing by the Medical Service Subcommittee or the Committee of Inquiry and the decision of the Minister, has been shrouded in an impenetrable mist, and it is to be hoped that this will now be dispelled. A panel doctor, chosen by the Insurance Acts Committee, is to be present at the hearing by the insurance committee, and at the hearing of the appeal (if any) whilst three doctors, chosen by the Minister from a small panel nominated by the Insurance Acts Committee, are to constitute with the chief medical officer of the Ministry and his two assistants, a new Joint Advisory Committee to help the Minister in his final decision. Among other reforms, the Minister agrees to instruct insurance committees to see that charges are made as specific as possible, and to forbid their clerks to act as prosecuting counsel in cases sent by them, or by the Medical Benefit Subcommittee to the Medical Services Subcommittee. The best shorthand writer on the insurance committee staff is to attend the proceedings before the Medical Services Subcommittee and take notes from which the clerk will prepare a full memorandum; before this memorandum is circulated to the insurance committee it will be submitted to the members who were present at the hearing. The Medical Service Subcommittee besides being able to recommend the withholding of a grant, the removal of a patient from the doctor's list, the limitation of the list, or the removal of a doctor from the panel, may now recommend that a doctor be warned or censured, and it is hoped that insurance committees may in practice send such recommendations instead of advising the Minister to withhold a grant. The Minister's power to withhold grants without instituting an inquiry is now limited to cases of failure to keep proper records, or to return Form R.2, or to notify cases of tuberculosis; and except where a doctor has been convicted of a felony he agrees not to order an inquiry without any representation from a medical service or joint service subcommittee. A minor source of dissatisfaction has been removed by a new clause imposing on complainants a time-limit of eight weeks, after which no committee will be allowed to investigate a case without the Minister's express approval.

Bureaucracy, of which lately there have been frequent complaints, voiced particularly by the Lord Chief Justice, takes two familiar forms. One is the excessive recourse to rules and regulations, the other is the tendency to elevate a department or a Minister into a judicial tribunal from whose judgments there is no appeal. The fear of departmental government lies behind the criticism, levelled by delegates to the conference, that the scheme is not watertight. The Minister, it was argued, will not be compelled to accept the advice of the new body, and

[1] The Cancer Review, October, 1927.

since he does not bind himself to nominate members of the panel in rotation, he will be able to select those who prove complaisant to his wishes. The right of appeal to the courts, said the scheme's opponents, was the only effective safeguard against injustice. As a whole, however, the conference felt that the new proposals were sound and ought to work, assuming goodwill and the intention to play fair on both sides. If the parties are not going to follow the ordinary rules of straight dealing, then no machinery is likely to run smoothly; the success of any scheme depends largely on the men who work it. If the Minister of Health, whoever he may be, should so lose sight of the general good as to ignore the Advisory Committee or make its function negligible, or if the representatives of the panel should fail in their obligation to protect the doctor from the admission of unfair evidence or irregular procedure at the various stages of an inquiry, then it will be necessary to find some other way. But it would be unfair to assume such failures at the outset. Little harm can be done in three years, and there will be a general desire to find in the new arrangements a convenient means of securing justice.

Annotations.

"Ne quid nimis."

HYGIENE FOR SEAMEN.

SEAMEN in the mercantile marine seem to be coming into their own at last. Their grievances were first seriously voiced in 1894. In that year Sir W. Forwood, chairman of a conference of the Sanitary Institute at its Liverpool Congress, described "the old fo'c's'le, right in the bows of the ship, often not more than 4½ or 5 ft. high, cumbered up with windlass, chain cables, and hawsers, flooded with water, which rushed through the hawsepipes every time the ship plunged into the sea, destitute of sanitary conveniences of any kind, and filled with the hot steamy atmosphere of bad tobacco and damp, drying clothes, for which there was no escape, as there was no ventilation whatever; no wonder that existence in such dens degraded the life of a seaman." He was followed by Dr. W. Collingridge, M.O.H. of the Port of London for the previous 14 years, who in his time did much to prevent infectious disease from entering the country from abroad, to stop typhoid fever being spread by oysters, and to clean the kitchens of City restaurants. Dr. Collingridge, in a paper on the hygienic needs of seamen, which we published on May 5th, 1894, asked for many improvements on ships, which few readers of that day could have thought other than Utopian. He asked that the men should be berthed in deckhouses if not, that meanwhile a forecastle should be 6 ft. high at least, with cork paint over its naked iron, no capstan in it nor ship's stores, ventilation and better heating, and for the men larger cubic space, good water-closets, and—in the larger ships—a hospital. The provision of good drinking water was insisted upon, as well as a fair scale and certificated cooks. All these the seamen now have, though they have had to wait years for them. Conditions are enormously improved to-day, and we have statistical evidence thereof in the annual report by Dr. A. A. Mussen, M.O.H. to the Liverpool Port Sanitary Authority, which is reviewed elsewhere this week. Dr. Mussen has a record index of the ships that visited that port in 1926, and prints a table showing the seamen's accommodation in 317 ships built before 1916 and 316 built since. We need only refer in detail to the first group, made up of large cargo ships with white crews, 187 built before, 211 since 1916. In the 187 earlier ships 104 (55 per cent.) housed their crews only in the forecastle, 39 (20 per cent.) berthed them only aft. But in the 211 built since 1916, 39 only (18 per cent.) housed their men forward and 149 (70 per cent.) berthed them all aft. The benefit of the change is, in Dr. Mussen's words, "more room, ventilation and lighting better, less dampness and weather damage," and, we may add, far less misery in storms. But this taking of the seaman out of the forecastle is not all that has been done. Nearly all new ships have wash-places, two in every three ships have messrooms, half have hospitals, one in every four cubicles, and 7 per cent. baths. These are great advances, and there would appear to be a definite intention on the part of shipowners to afford to seamen in their ships comforts approaching those of their brethren on shore.

To some extent, we suppose, the shipowner did not know how badly off his seamen were, and for this reason we have made our recent endeavours to enlighten him. The Royal Sanitary Institute has inculcated similar lessons through expert advice, and the medical officers of health of Port Sanitary Authorities, who saw with their own eyes how sanitary standards afloat lagged behind those on shore, have told the same story from the medical standpoint. The Board of Trade, with no medical staff, has helped of recent times to improve seafaring conditions, deriving its knowledge of hygiene from the Ministry of Health and the Port Sanitary Authorities. There is real willingness, therefore, being displayed to give seamen the same advantages as those enjoyed by other citizens, and we look forward to a provision that plans of ships should be approved by the local Port Sanitary Authority before construction is begun, realising that ships are the dwelling-houses of those who sail on them. With improving conditions we may expect that the returns of deaths among seamen may be trustworthy, and regularly collated and published. The duty of the officers of the medical service in the mercantile marine has, on some of the ships employing a doctor, been carried on in distasteful and unpromising circumstances, even while in the large companies the necessary reforms have been long made. We review the conditions of this service on page 936, and draw attention to the opportunities which it offers. These doctors, by coöperation with the port medical officers, can help to keep alive the determination to raise the hygienic and sanitary standards on all our merchant ships.

JEAN NICOLAS CORVISART.

IN his inaugural thesis[1] on Corvisart and cardiology, which contains a portrait of this great French clinician, Dr. J. M. Lassus maintains that Corvisart, whose fame has been cast into the shade by his pupil Laënnec, was the founder of French clinical medicine at the dawn of the nineteenth century. He was first and foremost a cardiologist. Before his time it was only the anatomical lesions of pericarditis that had been carefully studied, and Sénac (1693–1770) alone had undertaken a systematic study of affections of the heart. In his work entitled "Essai sur les maladies et les lésions organiques du cœur" Corvisart emphasised the following facts: (1) the frequency of organic lesions of the heart; (2) the necessity of distinguishing functional disturbances from definite organic lesions; and (3) the necessity of having a cardiac symptomatology essentially founded on percussion, for which he was indebted to Auenbrugger. In his clinical account of what he called "Aneurysms of the Heart"—i.e., cardiac insufficiency—he was the first to describe the dyspnœa caused by exertion and the palpable thrill of mitral stenosis. But his work principally emphasises the importance of the following: (1) the distinction between hypertrophy and dilatation of the heart; (2) the occurrence of three successive periods in the course of cardiac insufficiency; and (3) the causal connexion between valvular lesions and cardiac failure. Lastly, in his insistence on the importance of comparing the symptoms found during life with the lesions present after death, Corvisart may be regarded as the founder of anatomo-clinical cardiology.

[1] Thèse de Paris, 1927, No. 348.

RELATIVE VALUES IN PUBLIC HEALTH WORK.

IN his inaugural address last week as President of the Society of Medical Officers of Health, Dr. James Wheatley, medical officer of health for Shropshire, put forward with vigour and eloquence a new conception of public health. We cannot afford, he said, to interfere with the health and vigorous development of the body and mind of a large proportion of the people in order to prevent a few accidents. Two instances he gave in illustration of this thesis were the freedom with which German children were allowed to swim in the Rhine, to the infinite advantage of their health and physique, although the casualty list might be considerable; the other, the routine removal of the newly born child from its mother's side to a cot, to avoid the occasional risk of overlaying, overlooking the risk to the welfare of the child of forfeiting the uniform warmth of the mother's body for the first three days of independent existence. The great importance of infant welfare work as at present conducted is, according to Dr. Wheatley, not so much the preservation of infant life as the production of a healthy adult population. The best guide to physical progress would be found, he is satisfied, in tests of physical fitness which, if made universal, would result in rapid advance of physical development and general health. To point his lesson further he took the recent work on the prevention of diphtheria and scarlet fever. Are we, he said, to Schick and Dick everyone? or are we to space and ventilate better and ever better so as to bring vital sunshine into our schools and homes, reserving these two tests and inoculations for emergencies and special conditions? That great sanitary reformer, Sir John Simon, noted nearly 70 years ago the possible danger of reducing disease while leaving the primary cause intact. Suppose, said Dr. Wheatley, dental caries could be prevented by the use of the toothbrush and it became possible by such an artificially short cut to abolish the disease, whilst leaving defective diet and wrong habits unremedied, would such eradication be a benefit or a calamity to the community?

Following up this thought, Dr. Wheatley went on to speak of the need critically to examine the advice of the consulting physician whose experience is entirely with sick and abnormal persons, and to emphasise the importance and lasting value of work which tends to improve the living of the ordinary individual. If open-air methods were advisable for the victims of our present bad hygienic conditions, how much more the need to provide open-air schools for the whole population of school age. The practical difficulty is that of heating, for any method which heats the air is rendered useless by the rapid change, and radiant heat is too unequal. The adoption of the open-air principle in school construction must depend, he said, upon the effective and economical solution of floor heating. Attempting to assess health factors in their relative importance, Dr. Wheatley put in the first place research in its widest sense. We are, he said, benefiting enormously at the present time through modern physiological research; inquiry into the causes of the fall in the death-rate from tuberculosis during the last 50 years is much overdue. Second in importance he placed the education of the people which, to be effective, would require a vastly improved system of health visitors and district nurses to give instruction in the homes. Antiquated restrictions on the nursing of infectious disease must give way to the modern view that a large proportion of ordinary ailments are infectious and that the spread of infection by nurses can be prevented by simple precautions. Incidentally he put in a good word for open-air bathing and sun bathing, the demand for which, he thought, would increase enormously in the near future. Dr. Wheatley concluded an instructive address by pleading for a wider conception of the position and responsibilities of the medical officer of health. Efforts to improve the defective and diseased person, good enough in themselves, must not take precedence over the general measure so vastly more important for the prevention o disease.

Dr. Wheatley did not give a new name to hi teaching, but such a name has been supplied by Pro Stan. Ruzicka, of Bratislava (Presburg) Czecho Slovakia, who has just reissued a System of Hygien which attracted attention some years ago and whic he calls "eubiotics." Dr. Ruzicka, who edits th Czecho-Slovak *Journal of Hygiene*, teaches that huma life must be supported on physiological principle Briefly, his remedy is to remodel cities so as to mak them mere centres of business and public life t which workers will be conveyed each morning fro their rural dwellings, returning at night to their ow cottages, gardens, and farmyards, and in his pamphle he contrasts in parallel columns the life of a famil in the town with that of a family in the countr with a minimum of 2000 square metres of cultivate ground. The chief difficulty he foresees, even i Czecho-Slovakia, is the cheap and rapid means of tran port from the garden city to the business centres, difficulty which would be vastly accentuated in an country where Nature does not provide a chea method of producing electric power. Nevertheles his system of eubiotics is worthy of more than passing thought.

DISPENSARY TREATMENT OF TUBERCULOSI BY ARTIFICIAL LIGHT.

THE treatment of tuberculosis by the vario forms of artificial light has hitherto been carried o almost exclusively at residential institutions, or in t out-patient departments of the larger hospitals. May, 1925, the Lancashire County Council decide that experiments should be carried out to determi whether ultra-violet ray therapy might be profitab employed in connexion with the county dispensa service. Experimental light centres were according established at the Ashton-under-Lyne and Lancast Dispensaries in the summer of 1925. An account the methods employed, the types of cases treated, a the results of treatment at the two centres betwe the opening of the centres and the end of 1926, included in an instructive report by Dr. G. Lissa Cox, central tuberculosis officer of the county. T experience of Dr. Cox and his colleagues sugges that the lamps most suitable for dispensary use a the long-flame carbon arc, the Jesionek mercur vapour, and the Kromayer water-cooled mercur vapour lamp, the two former being employed f general, the latter for local treatment. Of 1 patients treated at the Ashton Dispensary up to t end of 1926, who with few exceptions were sufferi from tuberculosis of skin, glands, joints, or bon it is claimed that 91 cases could be classed "quiescent and apparently cured" after the ligh treatment. Dr. Stewart, the medical officer charge of the centre, estimates that, but for t dispensary treatment, 60 of these would have bee admitted for ordinary institutional care. A com parison of the estimated cost of the dispensary a institutional treatment has been made, and it claimed that the dispensary treatment has result in a saving of no less than £850 for this group patients, a striking figure when contrasted with total initial outlay of £333 on plant. The best resul from treatment have been obtained in cases of lup and adenitis (with abscess formation and skin involv ment). Of the former, 48 cases were treated Ashton with 21 apparent cures, of the latter 29 cas yielded 26 cures. It is stated that many of the lup cases had been under treatment "for so long 20 to 40 years prior to commencing light treatment The tables setting out the results of treatment inclu six cases of "bronchial glands," presumably the se of active tuberculous disease. After treatment wi carbon-arc lamps three of these were stated to "quiescent, apparently cured." A further comme

[1] From the author, Hygienic Institute, Bratislava.

is made that "cases of bronchial gland tuberculosis have done very well, and the X ray evidence tends to support the view that the light has had a favourable effect, although one is naturally cautious in drawing any definite conclusions, as it is possible the improvement might have taken place without the light." Now it is notorious that the diagnosis of tuberculous infection of the tracheo-bronchial glands can seldom be made with any degree of certainty. To determine by means of X rays or physical examination that an active lesion in this situation has become quiescent is in the present state of knowledge impossible. It is, therefore, undesirable to include statistics for a disease which can only be suspected, in tables devoted mainly to surgical tuberculosis of which the diagnosis is usually patent. A further assertion to the effect that "tuberculous eye conditions seem to respond very well to general treatment" is unsupported by evidence. Although one case of phlyctenular conjunctivitis is reported as cured, the assumption that this condition is tuberculous is not warranted.

We recommend all those whose work brings them into contact with the tuberculosis service to read Dr. Cox's report on the results obtained in the course of an interesting and very hopeful experiment.

THE LONGEVITY OF CRICKETERS.

IT is a deep-rooted belief that first-class athletes tend to die relatively young, but Mr. A. Bradford Hill, D.Sc., in a study from the National Institute for Medical Research (which appears on p. 949) shows that this belief is not well founded as far as cricket is concerned; a strict analysis based upon data in Wisden's "Cricketers' Almanac" makes it clear that cricketers are long-lived in comparison with the general population. Dr. Hill is here dealing only with cricketers of British nationality born since 1888, and his analysis terminates in 1913 in order to avoid the disturbing influence of the years of war. Taking his analysis a little further Dr. Hill finds that amateurs have a slight advantage over professional players in regard to longevity, the explanation no doubt being that while the amateur shares with the professional the advantage of physical selection he has in addition the benefit, as regards length of life, of social selection. The statistical analysis on which Dr. Hill's conclusions are based, although far more complete than any which has hitherto been made, was foreshadowed by figures given by a cricket enthusiast, Mr. Frederick Gale, some 45 years ago. Mr. Gale followed up the life-history of the so-called "B" eleven chosen by Lord Frederick Beauclerk to play against All-England. Of these 11 men the youngest died at the age of 69, while the others lived to various ages up to 95. In commenting on these figures Mr. Gale remarked that insurance offices would grow rich if no lives but those of cricketers were taken. It is not without interest that at the lecture in which Mr. Gale conveyed his observations, which were published at the time in our columns, the chair was occupied by Mr. Ruskin, then Slade Professor at Oxford.

SHELL-FISH SANITATION.

THE outbreaks of enteric fever and other gastro-intestinal complaints which have been traced from time to time to the consumption of shell-fish have seriously affected the prosperity of this industry in America. A conference held in Washington in February, 1925, led to the formulation of a scheme, described[1] by Mr. L. M. Fisher, a sanitary engineer in the U.S. Public Health Service; this scheme is promoted alike by the representatives of the health and commercial interests. The chief responsibility is thrown on the individual States, coördination and uniformity being secured by mutual agreements between the States with the help and advice of the Federal service. Under the scheme the shellfish-producing State examines the water, prohibits shell-fish being taken from unsafe water, gives licences for taking the shell-fish, inspects the marketing, packing, and shipping arrangements, and issues certificates to shippers who have complied with the State regulations. The State certificates are submitted to the Federal service, which, if satisfied, adds the name of the certified shipper to a list which is sent out twice a month to the health authorities in the various States. The success of the scheme depends upon the effectiveness with which the health authorities of the shellfish-consuming States admit to their markets only shell-fish which come from properly certified shippers. Mr. Fisher's article deals with other matters affecting the industry. Oysters thrive in a mixture of fresh and salt water, and the importance of the industry has in some cases led to the protection of estuaries from sewage pollution. The transfer of "seed" oysters from polluted waters to clean areas for development and maturity is mentioned as a danger, and the similar transfer of mature oysters as a still greater danger. In order that the oyster may free itself from impurity the temperature of the water must not be below 60° F., as a lower temperature interferes with the activity of the oyster, and prevents it cleaning itself. The examination of the water of the beds at frequent intervals is possibly a more reliable guide to safety than the examination of a certain number of the oysters. The practice of "fattening" oysters by removing them for short periods to fresher water and thus promoting osmosis brings added risk and has been prohibited by most of the oyster-producing States. The experiments which have been made to clean oysters by the use of chlorinated water have not so far met with approval and are compared to the "practice of pasteurising dirty milk." Mr. Fisher points out that there is a tendency amongst some of those engaged in the industry to make too much of the certification scheme as if it were an absolute guarantee given by the State and Federal governments, whereas the certificates refer only to the source of the oysters and the manner of packing at the point of origin. No responsibility is assumed for what happens to the oyster in its passage from the original shipper to the consumer. The progress of the scheme will be watched with much interest. In the past the careful conscientious oyster man has suffered from the doings of the less scrupulous producer. It is obviously of the utmost importance to the industry that the confidence of the public should be won.

[1] Public Health Reports, Sept. 16th, 1927.

ANOREXIA AND MALNUTRITION IN CHILDREN.

THE views expressed at a recent meeting of pædiatrists in Washington[1] suggested considerable divergence of opinion on the best way of combating anorexia and malnutrition in children. Dr. C. A. Aldrich, giving an account of his method of avoiding anorexia, and the theory on which it is based, laid stress on the distinction between hunger (a purely physiological function) and appetite, "a much more complex mental process dependant on pleasant memories of feelings, tastes, odours, and sights." The former, he said, merely initiates the taking of food; the latter controls the amount eaten. Transitory anorexia being usually the first symptom of an infection, whilst chronic anorexia results from the displeasurable feelings aroused by attempts to force the child to take food, Dr. Aldrich's invariable rule is to allow the child—even during infancy—to regulate the quantity of its feeds "with appetite as a guide." The success of this practice was shown by answers to a questionaire circulated to the parents, for it was found that on the average the children so treated were 3·6 lb. heavier than the normal for their age. In those who were under weight a definite physical cause for malnutrition was usually present. That there is much to be said, on empirical grounds, for Dr. Aldrich's line of treatment will be readily conceded

[1] Journ. Amer. Med. Assoc., Sept. 17th.

by many observers, though not all will admit the validity of the hypothesis on which it is based. His remarks seem to apply to children of all ages, expressly including infants on the bottle; and that so complex a mechanism as "appetite," according to his definition, should govern the quantity of food taken in infancy is an idea that will be accepted by few psychologists at the present day. Dr. L. W. Sauer described a routine treatment of underweight children of various types (excluding sufferers from diabetes and some special diseases) which is based on lines diametrically opposed to those advocated by Dr. Aldrich, and consists of a course of forced feeding lasting for three months and combined with periods of rest in bed. A five-meal diet is prescribed; afebrile children are started on an allowance of 40 calories per lb. of actual weight, which is raised until it approximates 40 calories per lb. of the theoretical weight for the height and age. Even vomiting is not regarded as a contra-indication. The results tabulated by Dr. Sauer show a gain of weight which is as striking as the rise in Dr. Aldrich's cases. His patients were of ages ranging from 5 to 12, and the psychological aspect of "appetite" might have been expected to play a more important part in their nutrition than in that of the series first described.

SANE ENOUGH FOR SENTENCE.

AT the recent Bedfordshire Assizes an inmate of the Three Counties Mental Hospital at Arlesey was convicted and sentenced for assaulting one member of the hospital staff and threatening another. In passing a sentence of two months' imprisonment the judge announced that he should assume that the accused man was sane. Possibly on this occasion the law was tempering justice with mercy; two months' detention in a normal prison is regarded as a lesser penalty than confinement for an indefinite period at Broadmoor as a criminal lunatic. Nevertheless, it certainly suggests that there must be something wrong with the law when an asylum inmate is sentenced as a sane man. This and other incidents raise the old disquieting doubts whether the law courts do not sometimes deliberately ignore the medical history of accused persons instead of obtaining the utmost possible information before passing sentence. The latest annual report of the Prison Commissioners contained some remarkable revelations of the tendency of certain magistrates to sentence a man first and to inquire into his mental condition afterwards. Persons, it appears, are not infrequently convicted and sentenced who are certified insane on their arrival in prison. A few months ago the Court of Criminal Appeal reaffirmed its rule of refusing to hear any fresh medical evidence in cases where the state of the accused's mind is a ground of appeal. The case of George Jordan, to which a correspondent draws attention in another column, seems to suggest the same attitude of judicial indifference to matters which, after all, may be as relevant to the issue of "guilty" or "not guilty" as any matters can be.

If the facts in Jordan's case are correctly stated, he was sentenced to 18 months' imprisonment by a court which did not adequately inform itself of his medical history and condition, and he was certified insane soon after he began to serve his sentence. If so, he was stigmatised as a criminal without sufficient consideration of his right to have the defence of insanity raised on his behalf. He recently committed suicide, and the coroner (Mr. Arthur H. Emanuel, of Southampton), having apparently access to medical evidence which must have made all the difference if it had been available in the criminal court by which Jordan was sentenced, observed that the case was one of the hardest and saddest in his experience. "By reason of his war service this man underwent injuries which made him assume the attributes of a criminal, whereas he was a splendid, honest man; for the sake of his wife and children some sort of representation ought to be made to the Home Secretary to remove the stigma of his having been made a criminal." When Parliament reassembles some Member will doubtless inquire of the Home Secretary what has been, or is proposed to be, done. The case looks like one of those which divide medical and legal opinion. The medical profession detects a series of symptoms which culminate in the climax of legal insanity; the symptoms and the climax are all stages of one disease; looking back upon the history of the case the supposedly criminal act is seen to have been the act of an insane man. On the other hand, the law courts and the Home Office will not admit that the earlier stages of mental disease can be accepted as lessening the criminal responsibility of the accused. The guardians of our penal system will not surrender the deterrent value of the hangman or the prison cell so long as the accused person has a lucid moment in which he can thereby be deterred. A kind of rough-and-ready give-and-take between the medical and the legal views is accepted by the public because it is believed that the legal view is applied with the utmost humanity and with full and enlightened use of the best medical information. If cases occur in which humanity is offended and medical information is ignored, the public may be roused to a sense of the limitations of the legal view.

COLOUR VISION.

A COMMITTEE of the British Association, consisting of Sir Charles Sherrington, Prof. H. E. Roaf, Dr. Mary Collins, and Dr. F. W. Edridge-Green, have issued a report on colour vision, with particular reference to the classification of colour-blindness. Any reference, implicit or explicit, to any theory of colour-blindness is carefully excluded, and it is recommended that the terms protanopia, deuteranopia, and tritanopia be abolished. Colour-blindness is defined as any marked decrease in sensitivity to a special region of the spectrum—e.g., to red—and it is recommended that if possible the precise wave-lengths involved should be specified. Failure to discriminate colours should be described not as colour-blindness, but as colour confusion—the number of distinct colours which are recognised in the spectrum being a rough measure of the degree of colour discrimination. All those persons who recognise only two colours in the spectrum possess a neutral region in which no sensation of colour exists. Its position and extent should be determined.

HOSPITALS AND MOTOR ACCIDENTS.

ALMOST every hospital in the country is faced by more or less serious difficulties as the result of the steadily increasing number of accidents caused by motor traffic. Sometimes it is the occupants of the cars who are injured, often seriously; sometimes it is the unlucky pedestrian who suffers. Whichever it is, the result is the same for the nearest hospital. However acute the difficulty of finding room, the sufferer has to be taken in and tended; the general experience is that, on the average, he occupies a bed for a longer period than the ordinary patient; and his presence may delay the reception of a patient who has been waiting for admission, perhaps for months. This is the human side of the problem, but there is also a serious financial side. More often than not these sufferers from motor casualties make no offering to the institution that has put them on their legs again, and the companies in which they are insured refuse to pay anything on the ground that hospitals are voluntary institutions and are therefore unable to sustain a claim at law. Obviously the situation cannot be left there, and the hospitals, in self-defence and in the interest of those who have what may fairly be described as the first claim upon them, will be compelled to find some means of self-protection. The Norfolk and Norwich Hospital, the waiting-list of which is being heavily encumbered by the results of motor accidents, seems to have found an ingenious

way out. A recent meeting of the governing body was reminded that a private practitioner, to whose surgery the victim of a motoring accident is taken, can send in a bill for his services, and it was pointed out that the hospital could place itself in the same position by sending all such cases to the new paying ward which is to be opened early next year. Whether the authorities of the Norfolk and Norwich Hospital have taken legal advice on the subject is not stated, but it is difficult to see how the motor insurance companies could repudiate a liability incurred by their insurers towards a body which is entitled to make, and notifies that it will make, a charge. The companies declare that if they accepted a liability towards the hospitals they would have to increase their premiums, but that seems very much like an admission that their beneficiaries are obtaining advantages for which they have not paid. The action of the Norfolk and Norwich Hospital, supported as it will probably be before long by other institutions, seems to point to the natural solution of a problem which of late has gravely increased the difficulties, both of means and accommodation, of the voluntary hospitals.

CLINICS FOR INDUSTRIAL RHEUMATISM.

AT the Annual Conference of Insurance Committees, held at Harrogate last week, Mr. Henry Lesser, LL.B., on his induction into the presidential chair, expressed the hope that national health organisations would coöperate in the treatment of rheumatism as seen in present-day industrial life. Approved societies, he remarked, have no power to make grants towards the cost of out-patient treatment of their members at hospitals; the Ministry of Health should allow the societies to assist their members by grants for hydrotherapeutic treatment, to count as additional benefit under the Insurance Acts. He quoted Sir George Newman's statement that the institutional treatment of arthritic patients was no longer merely an Utopian ideal; the concentration in an institution, properly equipped for research, of young patients with rheumatoid arthritis at an early stage could hardly fail to increase our present knowledge of the disease. Mr. Lesser set out the scheme promoted by the British Committee of the International Society of Medical Hydrology for the establishment of an experimental clinic for rheumatic diseases in London, and noted the proposal of the British Red Cross Society shortly to launch an appeal for £40,000 to found such a clinic, which if successful would be followed by the establishment of similar clinics in other parts of the country. Mr. Lesser based his remarks upon his recent tour of out-patient clinics for rheumatism in central Europe, where the field of investigation far exceeds anything yet attempted in this country. Although he failed to obtain statistics of the results achieved, he gained the impression that all the parties concerned—patients, physicians, employers, insurance officials—were agreed on the advantages to be derived from hydrotherapeutic treatment on those lines.

THE HARVEIAN CEREMONIES.

DURING the week of the Harveian Festival the President and Council of the Royal College of Physicians of London attended Bow Church, Cheapside, to hear the sermon preached annually under the Sadleir Trust, the preacher being the rector, the Rev. Gordon Ponsonby. The address formed a beautiful supplement to Sir William Hale-White's Harveian oration, which was printed in full in these columns last week, for he took as his theme the achievements of the Fellows of the College, who had died during the year, and whose lives had been dedicated to the progress of medicine along the many accessible paths made by Harvey's wisdom. In the evening a dinner was held within the College; the Speaker of the House of Commons (the Rt. Hon. J. H. Whitley), the President of the Royal Academy (Sir Frank Dicksee), the Secretary of State for Air (Sir Samuel Hoare), Prof. A. V. Hill (the recipient of the Baly medal), and other distinguished guests were present. Sir Samuel Hoare, in responding to the toast of the guests, made eloquent reference to the vast influence upon civilisation brought about by the strides in international communication, of which aerial transport was so notable an example.

THE annual dinner of the Royal Society of Medicine will be held at the Hotel Victoria, Northumberland-avenue, on Wednesday, Nov. 16th, at 7.30 for 8 P.M. Lord Darling will be the Society's guest of honour.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Comdrs.: S. F. Dudley to *President*, for R.N. College, Greenwich (Naval Medical School), as Professor of Clinical Pathology and as Specialist in Bacteriology; H. St. C. Colson to *Pembroke*, for R.N. Hospl., Chatham, and as Specialist in Bacteriology; G. F. Syms to *Victory*, for Portsmouth Dockyard; M. J. Aitken to *Calypso*; R. Lyon to *Berwick*; H. Wilks to *Cumberland* (on commg.); and F. J. D. Twigg to *President*, for three months' post-graduate course.

Surg. Lt.-Comdrs.: C. H. Savory to *Erebus*; R. P. Ninnis to *Vulcan*; T. N. D'Arcy to *Spenser*; and A. W. McRorie to *Ganges*, for R. N. Sick Quarters, Shotley.

Surg. Lts.: E. T. S. Rudd to *Columbine*, for R.N. Hospl., S. Queensferry; T. G. Davies to *Cumberland* (on commg.); C. G. Rippin to *Impregnable*; and G. Kirker to *Verbena* (on commg.).

ROYAL NAVAL VOLUNTEER RESERVE.

Prob. Surg. Lt. W. F. Lascelles to be Surg.

ROYAL ARMY MEDICAL CORPS.

Col. V. J. Crawford, late R.A.M.C., retires on retd. pay.

Lt.-Col. & Bt. Col. J. A. Hartigan, K.H.P., from R.A.M.C., to be Col.

Lt.-Col. W. M. H. Spiller, having attained the age fixed for compulsory retirement, retires on ret. pay.

Majs. P. C. T. Davy and G. A. D. Harvey to be Lt.-Cols.

The undermentioned Lts. (on prob.) from the secd. list, are restd. to the estabt.: F. McL. Richardson and J. W. Eames.

ARMY DENTAL CORPS.

Temp. Lt. J. B. Cowie, Dental Surg., Gen. List, to be Lt.

REGULAR ARMY RESERVE OF OFFICERS.

Lt.-Col. W. M. B. Sparkes, having attained the age limit of liability to recall, ceases to belong to the Res. of Off.

TERRITORIAL ARMY.

Lt. A. H. MacC. Eaton to be Capt.

General Hospitals.—Maj. R. M. Handfield-Jones resigns his commn.

ROYAL AIR FORCE.

Flying Officer B. L. Edwards is granted a permanent commission in this rank.

Flying Officer H. Penman is promoted to the rank of Flight Lt.

INDIAN MEDICAL SERVICES.

Lt.-Col. A. C. MacGilchrist retires.

Capt. Abdul Hamid Shaikh to be Maj.

The undermentioned officers relinquish their temp. commns.: T./Lt. Tharmale Govinda Raghava Panikkar and T./Lt. Amar Nath Bajaj.

Lt.-Col. J. Cunningham, Directeur, Pasteur Institute of India, Kasauli, has been placed on special duty in connexion with the Seventh Congress of the Far Eastern Association of Tropical Medicine. The services of Lt.-Col. H. H. Thorburn, Agency Surgeon, have been placed at the disposal of the Government of India, Education Department. Maj. H. E. Murray, Second Resident Surgeon, Presidency General Hospital, Calcutta, has been appointed First Resident Surgeon of the Institution.

Army instructions issued in September notify the abolition of the Central Dermatological Laboratory at Poona from March 31st, 1928. In future its work will be done locally by the Principal District Laboratory in each command—viz., Rawalpindi, Quetta, Meerut, and Secunderabad.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

CCXLVII.

THE TREATMENT OF PERFORATING INJURIES OF THE EYE.

A PERFORATING injury of the eye must always be looked on as a serious surgical emergency and treated under the best conditions possible, since any temporising or inexpert care involves the risk not only of loss of the injured eye, but also of one of the most tragic of possibilities, the onset of sympathetic ophthalmia causing destruction of its fellow. The treatment of perforating injuries as usually adopted can only be dealt with by considering in the first place the diagnosis and classification of such injuries. The subject is large and only the broad principles which guide the procedure of the ophthalmic surgeon can be indicated, since in actual practice each case is different and must be judged on its merits.

Classification.

Cases of perforating injury fall into two groups: 1. Those in which the globe is perforated by a blunt or sharp instrument, but there is no retention of a foreign body within the eye. 2. Those in which a foreign body remains within the eye. Both these groups can be subdivided on an anatomical basis, according to the position of the wound and of the foreign body. The question of diagnosis arises when from the history it seems likely that a foreign body is present. The settling of this question is of the utmost importance in treatment and prognosis.

Diagnosis of Intra-ocular Foreign Body.

The presence of an intra-ocular foreign body may be extremely hard to detect. Occasionally it may be directly seen in the anterior chamber or with the ophthalmoscope, but this is rare. There are four further sources of evidence which can be tapped—namely, radiography, examination with the magnet, biomicroscopy with the slit-lamp, and the history of the accident.

Radiography.—If the foreign body is opaque to X rays it can be photographed, and by the application of Mackenzie Davidson's method can be accurately localised, with a margin of error of less than one millimetre. Fortunately, the majority of intra-ocular foreign bodies are metallic and can therefore be detected. Even lead glass fragments may be localised, but the lighter forms of glass are transparent to the rays.

Examination with the Magnet.—If the foreign body is magnetisable its presence can be detected by means of the Haab or Mellinger magnet. The patient usually feels pain in the eye when the current is switched on, if the foreign body is attracted, and in a number of cases—sometimes only after repeated switching on and off—it can be drawn forward into the anterior chamber and thence extracted.

Examination with the slit-lamp is of assistance in cases where the perforation is very small and there has been no loss of aqueous, or obvious hæmorrhage into the anterior chamber. By its means it is possible to make out with certainty whether a small deep injury to the cornea has actually perforated or not, and whether there has been the slightest trauma to the iris. In some cases the track of a minute foreign body through the lens can be detected before the lens fibres begin to swell up.

The *history* should be very carefully taken, as it will often throw light on the possibility of an intra-ocular foreign body. For example, in the case of an injury received while chipping stone with a hammer there is very likely to be a fragment of steel in the eye, while a blow from a large iron nail or bolt, though perforating, is not often accompanied by retention of any metal.

Treatment of Perforating Injury without Retention of a Foreign Body.

(*a*) Wounds involving the *cornea* only are the simplest to treat, since, if sterile, they heal spontaneously. The eye should be well washed out, atropine instilled, a bandage applied, and the patient kept at rest. A watch must be kept for the onset of sepsis, and if this supervenes the treatment of infected ulcer of the cornea must be carried out (see Modern Technique in Treatment, Corneal Ulceration, by P. G. Doyne).[1]

(*b*) Wounds involving the *iris and ciliary body* are more dangerous since the risk of sepsis or of sympathetic ophthalmia is much greater. The iris or ciliary body or both may be prolapsed through the wound and operative treatment then becomes imperative. A general anæsthetic is usually necessary, since it allows of more thorough examination and more efficient toilet of the wound. The patient is already in pain and any manipulation of the irritated iris may be felt even after the instillation of cocaine. The eye is well washed out with a solution of perchloride of mercury, 1 in 12,000. The lids are retracted, taking care that there is no pressure on the globe, and the wound is examined. Any prolapsed portion of uveal tissue is freed from the edges of the wound and cut off. On no account must any attempt be made to replace such tissue inside the eye since it is most certainly infected. In a certain number of cases there is already pus in the anterior chamber when the patient is first seen. Although the prognosis is then bad an attempt to save the eye may be made by washing out the anterior chamber with peroxide of hydrogen. In some cases this is successful. In cases not obviously infected, if the wound is large and involves the sclera or limbus, it may be sutured with fine silk, but this is seldom necessary. In most cases, however, it is as well to cover the wound in the sclera with a small flap of conjunctiva. Atropine is instilled freely.

In all cases the eye must be carefully watched for the following complications: (1) Sepsis, as evidenced by either an iritis which may yield to treatment or a panophthalmitis which will result in loss of the eye. (2) Formation of anterior synechiæ. These are very common and extremely difficult to avoid after excision of prolapsed iris through a corneal wound. They interfere considerably with the healing of the wound, keep up irritation in the eye, and are a source of danger. They are usually divided as soon as practicable. (3) Appearance of plastic irido-cyclitis with keratic precipitates (k.p.). This is a danger-signal and if it appears the eye must be excised, since the risk of sympathetic ophthalmitis is extremely great. If the lens is injured the risk of loss of the eye becomes greater, especially in children. The lens fibres swell up when brought in contact with the aqueous and press the iris forwards on to the cornea. The tension of the eye then rises and a curette evacuation of the softened lens is called for.

(*c*) When wounds involve the *sclera* and *vitreous* behind the ora serrata there is usually a wound of the lid as well, and the swelling resulting from this may be so great as to make examination of the eye very difficult. If so a general anæsthetic should be administered and a thorough exploration carried out. There will probably be much subconjunctival ecchymosis around the scleral wound, masking it. Vitreous, choroid, and retina may be seen protruding from it, in which case they should be cut off. Suture of the sclera and formation of a conjunctival flap is usually desirable.

Whenever an eye is so grossly injured that restoration of useful vision is improbable it should be excised, as the risk of retaining it outweighs the possible slight advantage.

[1] THE LANCET, July 16th, 1927, p. 133.

Treatment of Perforating Injury with Retention of a Foreign Body.

Once the diagnosis of intra-ocular foreign body has been made the question of its removal must be considered. If it is in the anterior chamber or if it is magnetisable and can be drawn forward attempts are made to remove it. The hand magnet is invaluable in these cases, being used to remove the foreign body through the wound of entry or through a corneal incision after it has been drawn into a favourable position by the larger magnet. It is of great importance that attempts at removal should be made as soon as possible after the injury, since the foreign body will very soon become involved in exudate and fibrous tissue from which it may be very difficult to extir it. If it is non-magnetisable or cannot be located its removal may be impossible. The prognosis is, however, much worsened by its retention. Very minute foreign bodies may become encapsuled and cause no trouble, but more often, though sight may be good at first, a slow degeneration of the eye sets in which finally renders it useless. In the case of retained iron the process is accompanied by solution of the iron and deposition of it in the uveal tract and in the lens (siderosis).

It is obvious that, apart from the question of the practicability of the removal of the foreign body, the most important point is the cleanliness or otherwise of the fragment. Pieces of metal are often hot when they fly into the eye and are more likely to be sterile than other substances, such as stone or wood splinters. These latter are very apt to give rise to suppuration, which may destroy the eye even though the foreign body has been removed. The prognosis is also worse if the lens has been injured. In such cases a second operation (curette evacuation) may be necessary to relieve the tension due to the swelling of the lens. Sometimes the foreign body is discharged with the lens matter at this operation.

Prophylaxis of Sympathetic Ophthalmia.

It is obvious that if an eye is so grossly injured that no restoration of function can be hoped for it should be immediately excised. When, however, attempts are made to save an injured eye a strict watch should be kept on it for many weeks. In the diagnosis of early sympathetic ophthalmia the slit-lamp is invaluable. It will reveal the earliest traces of k.p. in the exciting eye and will also render visible those fine changes in the anterior vitreous which precede the appearance of cyclitis in the sympathising eye. If regular examinations of both eyes are made the approaching danger may be seen and dealt with relatively earlier than was previously possible. It is also as well to do a differential blood count in suspicious cases, since a rise in the percentage of large mononuclear cells is found in most cases of sympathetic ophthalmia. The grosser signs—persistence of pain, lacrymation, and ciliary flush in the injured eye—are easily detectable, and if the eye has no useful vision it should, of course, be excised without waiting for the appearance of cyclitis.

IDA C. MANN, M.B. Lond., F.R.C.S. Eng.,
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BIRMINGHAM HOSPITALS CONTRIBUTORY SCHEME.—This scheme will come into operation on Jan. 1st, 1928. The minimum contribution will be 2*d.* per week per person, and employers will be asked to pay at least 25 per cent. of the amount contributed by their employees. The hospitals will be open free to the very poor who are unable to join the scheme; persons of limited income will be eligible for free treatment if they belong to the scheme; contributors not considered eligible for free treatment may be called upon to make some additional payment. There will be a maintenance charge for non-contributory patients who can afford to pay 2*d.* per week, and hospital and convalescent home benefit will be extended to actual dependents of contributors. The Hospital Saturday Fund will be the principal branch industrial contributors' scheme for employers and employees.

Special Articles.

THE PANEL CONFERENCE.

THE annual conference of representatives of local medical and panel committees was held on Oct. 20th in the Great Hall of the British Medical Association's House, when Dr. E. K. LE FLEMING (Dorset) occupied the chair, and the proceedings opened with a tribute to the memory of Dr. T. Ridley Bailey. After some domestic business had been transacted, Dr. H. G. DAIN (Birmingham), Chairman of the Insurance Acts Committee (I.A.C.), moved that the conference approve the

Proposed Modifications in Disciplinary Procedure

upon which his committee had provisionally agreed with the Ministry of Health. He pointed out that there were two ways of dealing with the question of discipline: first, by agreement with the Ministry, and secondly, by the usual legal machinery. He understood that, if the profession were very strongly in favour of going to the courts to settle alleged breaches of contract, the Ministry would not offer any great objection. That would get rid of the final decision of the Ministry without appeal—the great bogy of the profession. But it would also mean the publicity of the courts in all cases. If the profession preferred the method of disciplinary machinery inside the service, then—said the Minister (and the speaker sympathised with him)—they ought to accept the Minister's final decision. In any case the Minister was unwilling to accept the liability of being summoned to appear in court for any decision he made (a very reasonable refusal, Dr. Dain remarked). He could not prevent an appeal on the ground of irregularity or an action ultra vires, but he was not prepared to consider any appeal on the merits of the case.

In the view of the I.A.C., Dr. Dain continued, the chief disadvantage of the existing machinery was the presence of a certain gap, which they had not expected when it was first set up—an interval during which they had no knowledge of the proceedings. They had provided that cases should be heard in a certain way with certain methods of appeal, and that in the end the Minister should have the decision; but they did not know what happened between the hearing of the case by the Medical Service Subcommittee or the Committee of Inquiry and the Minister's decision. They were not aware how the Minister made up his mind, and had no control over nor knowledge of the stages between these two events. When the scheme was initiated there had been no Ministry of Health; there had been National Insurance Commissioners, who would, the Committee had been assured, themselves deal with the reports in disciplinary cases; this method the Committee had been prepared to accept and would be prepared to continue. The head of the department, however, had so many duties that he had to delegate some of them, and the Committee thought that that was the chief disadvantage of the present scheme. He hoped that the conference would find that the suggestion he was about to put before them would bridge over that gap. It provided for the association of the panel practitioner with the machinery from the beginning until the final recommendation upon which the Minister acted. The duty of the Committee's representatives would be to see that fair play was given at every stage of the proceedings. The new scheme would provide for what Mr. Lloyd George called "the judgment of the doctor by his peers." At no stage would a civil servant alone be empowered to deal with a case.

Time Limit for Complaints.

Dr. Dain went on to outline the existing procedure step by step, and to explain the effect of the suggested modifications. To begin with, he said, the limit fixed

by the regulations on the time which might elapse between the alleged breach of contract and the lodging of a complaint about it was in certain areas almost entirely disregarded. That meant that an insurance committee officer who was hostile to the medical point of view or the medical service might find some reason for having the case heard at almost any date. If the conference accepted the report he laid before them, it would become an established fact that the Medical Service Subcommittee might investigate any complaint made between six and eight weeks after the act, but that the consent of the Minister would be necessary if the interval were longer than two months, and the Subcommittee would have to satisfy him that there existed reasonable grounds for the delay. The doctor would have an opportunity of objecting to the extension, and would be in the same position relative to the Minister as the Medical Service Subcommittee. That, in Dr. Dain's opinion, adequately safeguarded the position.

Again, in some areas, complaints against doctors had been couched in very vague terms, and fresh causes of complaint had been admitted during the hearing; the doctor had accepted the position. The Ministry had agreed to inform insurance committees that complaints should be as specific as possible. While the conference might be disappointed that this was not made a definite regulation, they would see the inadvisability of pressing to have it made absolute, which would mean in most cases that the clerk to the insurance committee would have an interview with the patient or society complaining in order to find out exactly what the complaint was. This would put him in a position to hear the case with nobody there and to ask any questions he wished, and this might result in much more serious charges being made than had at first been intended.

Position of the Clerk at the Hearing.

There were, unfortunately, clerks who considered it their business to act as prosecuting counsel. This was, of course, an entirely irregular procedure, and could only happen with the consent of the doctors sitting on the committee. The doctors were there to see fair play and if they did not prevent this no regulations could. It was for the panel practitioners to replace such members of the committee with others who had a better appreciation of their duties. There were circumstances in which the clerk might consider himself entitled to act in this way; for instance, when the complaint was made by the Medical Benefit Subcommittee or the Insurance Committee itself. The Ministry had agreed that insurance committees should be told that this procedure was unsatisfactory and that the clerk should only act in the manner prescribed.

Other areas had submitted reports which had never really been properly considered by the Medical Service Subcommittee. This again could only happen with the consent of the Subcommittee. In his own area all reports were submitted to the members present, and if a majority disapproved they were reconsidered. The Minister agreed that the best shorthand notes available should be taken, and that the report should be approved by the Subcommittee.

Powers of Insurance Committees.

Under the regulations the Insurance Committee might do one of four things on the report of the Medical Service Subcommittee: they might remove the patient, limit the list, recommend deduction of money, or advise the deletion of the doctor's name from the panel. The new scheme proposed to give them the additional power of censuring the doctor. Whereas now they often felt themselves bound to make representations, if they could warn, caution, or censure a doctor they might not need to recommend in many cases that money should be withheld.

When the Insurance Committee had considered a case and made a recommendation, the papers went to the Ministry, and the respondent was advised of the finding, furnished with the report of the Medical Service Subcommittee, and told that he might appeal, if he wished, within a given time. Up to now any appeal had been heard by one or two officers of the Ministry; the Minister had now agreed that in future a doctor nominated by the I.A.C. should be associated with those officers to hear the appeal. Dr. Dain reminded his hearers that, like all appeals in law, this appeal was a reconsideration of the evidence already heard and not a rehearing. If, on the other hand, the respondent did not appeal, he was told at the end of the month that the Minister was considering the report of the committees and perhaps contemplating a money deduction. He might then make a representation in writing or orally; if he chose the latter, officers of the Ministry were sent down to his area. The I.A.C. had now arranged that a doctor nominated by them should be present at that hearing.

New Joint Advisory Committee.

The Ministry, having all the reports in hand, now considered what should be done and what the final decision should be. This was where the new body came into operation. All cases at issue would in future be referred to what was called a Joint Advisory Committee, which would consist of the chief and two other medical officers of the Ministry and three doctors chosen from a panel which the I.A.C. would themselves nominate. That body would consider the reports of the Medical Service Subcommittee and the Insurance Committee and the respondent's oral representation, or the findings of the court of appeal, and would advise the Minister as to the action he should take. In promulgating his decision he was not, of course, compelled to accept the findings of this body, but as a matter of practice and business he was inevitably bound to accept them. If he did not, then the scheme had failed, and it would be necessary to find some other method of dealing with the disciplinary machinery.

Other cases were heard by a Committee of Inquiry, which sometimes recommended that a doctor should be removed from the panel. It had been said that the functions of that committee were improperly curtailed and that it had no power to hear certain evidence. That was untrue, and the committee could hear any evidence it saw fit to entertain. The admission of improper evidence was ground for appeal from this court as from any other, but it was presided over by a barrister who was always, in Dr. Dain's experience, very careful. The Committee of Inquiry advised the Minister of the facts found and the inferences to be drawn from them, but made no specific recommendation about the penalty. The only punishment provided was removal from the panel, but there had been cases in which the evidence had not been conclusive enough to warrant removal, although the Minister had withheld the grant. It had been decided last year that the Minister should not inflict a lesser penalty without a rehearing of the case before the Advisory Committee. The Minister would use the Advisory Committee for the major question as well. As a matter of experience, the I.A.C. was not aware of any case in which the Minister had ever removed a doctor from the panel against the weight of evidence.

These, then, said Dr. Dain, were the chief alterations which the I.A.C asked the conference to approve in the disciplinary machinery. If they approved of them, his committee considered that they should definitely undertake to forego, for a period of years, any right to modify them or to appeal to the courts. The scheme had its disadvantages, but seemed fair and just from beginning to end, and was worth a trial. If it worked fairly, they would be better off both in the public estimation and financially.

Minor modifications were the limitation of the Minister's power of initiating complaints to cases of alleged failure to keep adequate medical records, to return Form R.2, and to report on tuberculosis cases. He could now order an inquiry without receiving a

representation only when a doctor had already been convicted of a felony.

The work of the new committee would be confidential, but it would be the duty of its members to see that nothing unfair was done, and to refuse to admit unfair evidence. If things happened of which they disapproved, their method would be to come back to the Insurance Acts Committee and resign. That committee would then have to admit that the scheme was unsuccessful. Until that happened, however, provided that they selected the proper representatives and the committee functioned properly, the result would be a machinery free from any possibility of abuse and satisfactory to the men working under the National Insurance scheme.

Discussion.

The proposed scheme aroused considerable discussion, but none of the amending motions was carried, and many of them were withdrawn after the conference had heard the explanations of representatives of the committee. The recommendation was finally passed as proposed. Criticisms showed considerable distrust of a scheme which did not allow for a final appeal to the courts, and motions to demand this were brought forward by Wolverhampton and Cheshire.—Dr. L. J. PICTON (Cheshire) observed that panel doctors were medical citizens and not State servants and that their contracts were not different from that of a builder with a county council; it was essential to maintain this. In arbitration arrangements there was always a clause admitting of appeal, and it was reasonable to regard the whole disciplinary machinery in this case as an arbitration scheme. The right of appeal would be very seldom used but would be the greatest possible safeguard against abuses.—Dr. A. FOSTER (Worcester) pointed out that the judges were continually complaining of the increasing power of Government Departments, and Dr. DAIN agreed that it would be very difficult to secure the appeal clause until the judges had succeeded in strengthening their position. It would mean a hard fight, and he did not want to fight for something that might prove unnecessary. Great improvement had been obtained through negotiation, and he urged the meeting to give the scheme a fair trial without committing itself on the subject of the appeal. Cheshire and Wolverhampton thereupon withdrew their motions, but Dr. GORDON WARD put the motion of Kent—

That the proposed disciplinary procedure is open to the objection that: (*a*) it leaves the decision as to guilt and penalty in inquiry cases with persons who have not heard the evidence; (*b*) it permits evidence to be brought against a practitioner or an insurance committee of which neither party is made aware; and (*c*) it proposes that this state of affairs shall remain unquestioned for several years.

He maintained that the I.A.C. was not strong enough; the Advisory Committee was not a judicial body and the Minister was not forced to choose its members in rotation; he would soon get on it those who were complaisant. Dr. DAIN challenged the accuracy of the Kent statements; guilt was decided in every case by the Medical Service Subcommittee, and the whole object of the Advisory Committee was to prevent the production of evidence of which the doctor or the insurance committee were unaware. A term of three years was not long enough to do any harm. Dr. H. B. BRACKENBURY (Middlesex) emphasised the advantages secured, particularly the bridging of the "dark gap" and the acquisition of a perfectly professional tribunal to decide questions of medical procedure. The Kent motion was lost. London wanted the panel for the Advisory Committee to be either nominated or approved annually by the Panel Conference, but Dr. DAIN persuaded the meeting not to adopt this cumbersome procedure and to leave the matter in the hands of the I.A.C.

Dr. J. HOLMES, proposing a motion from Bury, that all evidence against a medical man should be given on oath, emphasised the gravity of this for the doctor. Dr. DAIN replied that the evidence was given on oath in Scotland, but it did not seem feasible to get the same procedure in this country. He was not satisfied that the oath would materially alter the witnesses' statements. The Bury motion was withdrawn on his promising to inquire into the possibilities.

Dr. H. J. CARDALE (London) then proposed three motions by London. One opposed the suggestion that a "plea in extenuation" might be made at the end of the hearing of a complaint; the second maintained that any additional issue raised at a hearing should be made the subject of a fresh charge, and the third wished to limit the functions of clerks in all cases investigated by the Medical Service Subcommittee. Dr. CARDALE pointed out the absurdity and prejudicial effect of a "plea of extenuation" put in by a solicitor before his client had been found guilty, and said that the doctor was often the worst judge of what was best for his case. Dr. DAIN said that many doctors would prefer to get it all over at one hearing and on balance they did better as things were. The Ministry would not object to a second hearing if there had been or would be prejudice. The doctor could always demand an adjournment. He reiterated his remark that the procedure of any clerk must depend on the men constituting the committee; it was impossible to provide for rabbits on a committee by rules and regulations.

Scotland.

Scotland, said Dr. Dain, did not come under this scheme, but had agreed to it in principle, except that it was not proposed to press for limitation of the clerk's activities.

National Insurance Defence Trust.

The proposal of the trustees of the Defence Trust to subscribe £1000 to the Representation-in-Parliament Fund of the British Medical Association aroused much opposition. Kent, Stockport, and West Ham sent up motions condemning it as undesirable or illegal, and the West Ham motion, expressing disapproval of the action, was passed by 71 votes to 66. Dr. H. S. BEADLES (West Ham), Dr. GORDON WARD, Mr. H. D. POLLARD (Bedfordshire), and Dr. D. O. TWINING (Devon) supported it. Dr. DAIN said that legal advice had been taken and both he and Sir ROBERT BOLAM urged the conference to take the large view of medical organisation. The best way to influence legislation, said Sir ROBERT BOLAM, was by quiet talks to officials before proposals had gone too far, and it was much better to prevent trouble than to wait until it came. It would pay them over and over again if £2000 or £3000 would keep two or three doctors sitting in Parliament. Dr. J. A. PRIDHAM (Dorset) illustrated this from his own experience of county council work, and Dr. BRACKENBURY pointed out that the proposal was not to hand over the sum to another fund but to use it for supporting approved candidates on the trustees' own conditions. It would be of the greatest importance to have suitable candidates in Parliament when the National Insurance Act came to be extended.

Collection of Statistics.

Kent and Gateshead urged the publication of statistics and the establishment of a statistical bureau. Dr. DAIN replied that a bureau would be established as soon as local committees provided it with statistics to work on. Meanwhile, figures were being collected as far as possible and were available for any area which required them. He deprecated their publication and the motions were lost.

Change of Doctor.

Dundee deprecated the new 14-day scheme for change of doctor and preferred the old six months' period. Dr. DAIN explained that the I.A.C. had had to deal with a very urgent matter and had been unable to consult the conference before acting. He thought the new scheme would discourage canvassing as well as preventing patients from getting certificates too easily. The recommendations of the Committee were

finally carried as put, with the exception of an amendment by Hertfordshire, modified by London, and accepted by Dr. Dain. This read :—

That when an insured person asks the insurance committee to transfer him from one local practitioner to another and gives some complaint against the doctor as a cause for the transfer, the committee shall arrange the transfer and shall inform the insured person that if he wishes to persist in the complaint it must be made in a separate letter.

Accidents, Mileage, and Ultra-violet Treatment.

Buckinghamshire and Northamptonshire brought forward, but failed to carry, motions asking for a special payments fund for accident cases, and for payment for emergency treatment from the Central or Area Fund. Hampshire was dissatisfied that no increase had been made in the Mileage Fund for 1927, although the statistics showed an increase of 25 per cent. on the miles travelled. Dr. DAIN said that it would be unwise to reopen the question. Cost of travel had decreased, and on the whole rural practitioners were not dissatisfied.

The Committee's report had expressed the opinion that ultra-violet ray treatment was not necessarily a specialist service, and that local committees must deal with it as cases arose. Somerset wished to refer this back, and motions from Gateshead and Dundee maintained respectively that it was a specialist treatment, and that it was not part of the duty of the ordinary practitioner. Smethwick wished to arrange some special fee for this work. Dr. DAIN saw no way of making a fair arrangement under existing procedure, but accepted Somerset's amendment.

Ophthalmic and Dental Benefit, and Benefit for the Aged.

Dundee, Bury, Liverpool, and Dorset asked for special arrangements for the cards of insured persons over 65, as old-age pensioners at present disappeared from the panel lists. Dr. DAIN agreed to discuss with the Ministry the best way of dealing with the difficulty of the aged insured person, and it was agreed that patients should have free choice of ophthalmic and dental surgeon.

The Chemists' New Agreement with the Ministry.

This year the chemists have agreed to take over the whole Drug Fund, and take the risk of profit or loss on the transaction. No specific sum was mentioned, though a minimum was fixed and an estimate made. This arrangement called forth motions of protest from Gateshead, Kent, Northumberland, and Lancashire. Dr. LE FLEMING pointed out that it was a *fait accompli*, made without the consent of the doctors ; he asked the conference seriously to consider whether any good purpose would be served by anticipating at this stage trouble arising between doctors and chemists or an inferior dispensing service resulting from the new arrangement. Dr. BRACKENBURY appealed to the conference not to press their censure ; the I.A.C. had already informed the Government that it considered the arrangement contrary to public policy, and there was no good in making extra difficulty. Dr. DAIN assured Northumberland that the position of the dispensing rural practitioner would not be altered and that his fees would be a first charge. Dr. GORDON WARD insisted on the importance of a protest, however, and carried the Kent motion as follows :—

That with regard to the proposals of the Ministry of Health relating to insurance prescribing, the proposed arrangement which would make it possible and financially profitable for chemists to limit the quality and quantity of medicines prescribed for insured persons, is contrary to public policy.

He failed, however, to carry a motion calling attention to grave deficiencies in the pharmaceutical service, such as failure to dispense promptly and to make provision for emergency prescriptions. Dr. DAIN said that a subcommittee had been set up which would go into complaints of this nature.

Coventry carried a motion designed to check excessive prescribing, and help doctors to know how they compared with the average, by asking that the data supplied by pricing bureaus, &c., to pharmaceutical committees should also be supplied to local panel committees.

A National Formulary.

Opinions were divided on the desirability of a National Formulary, urged by West Suffolk. Some thought that it would give the impression that panel patients were prescribed for in a set and specially cheap manner ; others thought the evils of stock mixtures were exaggerated. Dr. DAIN characterised the opposition as theoretical and very unpractical, and the motion was carried.

While agreeing with Walsall that private referees appointed by approved societies were undesirable, the Chairman asked what steps the I.A.C. could take in the matter, and nobody was able to suggest any. A motion by Gateshead deprecating any referees other than the regional medical staff was carried.

A motion by Drs. H. J. CARDALE and C. L. BATTESON (London) approving the principle of research by panel practitioners was carried, but the conference decided to pass to the next business when asked to agree that the doctors should be paid for such work. Dr. E. A. GREGG (London) pointed out the special value of research of this kind in view of the regularity and continuity of observation, and the stereotyped records at the disposal of insurance practitioners.

The Dinner.

The annual dinner was held at the Holborn Restaurant in the evening, under the chairmanship of Dr. LE FLEMING, and was an informal affair with a short toast list.

MEDICAL SERVICE IN THE MERCANTILE MARINE.

NOT long ago the value of seeking a temporary billet with one of the steamship companies would be put before newly qualified men by the teachers at the medical schools, who would detail the advantages to young men of seeing the world in this way. These advantages may still be obtained in the employment of some of the companies, but others, and mostly the more important ones, have a medical service, which though it is not of the long employment type prevailing in the Fighting Services, still does not offer temporary engagements for brief periods. But this statement requires some qualification to make it cover all the circumstances, so that every candidate for medical employment with the mercantile marine must address the company selected and obtain a statement of the terms offered. Although there is no uniform pattern the following will give a composite view of the situation on British lines, and it may be added that much the same conditions prevail in the best foreign lines, but foreign nationality is then generally made a condition.

On all the British steamship lines the medical officers must be of British or colonial birth and their names must be on the Medical Register. The age-limits for entrance and for the period of service vary considerably. The posts are frequently open to the middle-aged, and medical men may expect appointments in some quarters between the ages of 30 and 50, though one company gives the top limit for entrance at 45 and another at 40. One of the largest companies states that it does not consider applicants under 25, though few men apply for the posts at so early an age, particularly as throughout the service stress is laid upon the importance attached to experience after qualification. Certain of the companies require a health certificate with the application, but in most cases the chief medical officer or medical inspector will interview the candidate on behalf of the company. In the matter of testimonials and references the procedure is fairly uniform. References are required, usually two, and several companies lay stress on the fact that one of these should be from a non-professional source

vidence of previous experience must be furnished, nd the holding of house appointments or other esponsible billets counts in the candidate's favour.

The tenure of the appointments varies, and therefore o scale of pay can be given in detail. Some companies arry a permanent staff, but in others, equally well nown, the actual appointment is from year to year for one voyage, the contract being renewed as long s it is mutually satisfactory. That such appointents amount to a permanency is noted by the .M.O. of two of the most important companies, who ate that they have officers who have served the ompany in this manner for 20 consecutive years. he scale of pay is fairly alike in all the companies. s a rule it is £25 per month, rising by yearly crements of £1 monthly to £35, and in one case to 40 per month; but the exact facts will, of course, e ascertained by every candidate on seeking employent. Where long tenure introduces the question of ompulsory retirement the age settled is from 60 to 3, and pensions or gratuities are at the discretion of he managements. Alterations in the conditions of rvice on some of the companies are, however, ntemplated.

In addition to salary the medical officer is entitled make private charges for attendance upon ssengers, and the arrangements here differ with fferent companies and with the class of steamer, but rtain common principles prevail. It is usual for e company to fix the scale of fees to be charged by edical officers to passengers. In some cases all illsses and accidents to passengers can be charged for less that illness or accident can be reasonably held be due to the fault or negligence of the company. t the regulations of some companies show that es can only be received in respect of illnesses which not have their origin on board, and there is somenes an embargo upon the doctor paying more than o visits per diem to a patient in a private capacity ve with the knowledge of the captain. This proviso we believe, a remnant of old prejudices; it would ver be allowed to interfere with the discretion of the edical officer. Throughout all the lines fees for st-class passengers are higher than for second-class ssengers, and in some cases third-class passengers e attended by the medical officer gratuitously in e same way that he attends the ship's crew.

The arrangements for leave do not differ much on e different lines. The medical officer can expect ree weeks' holiday yearly on full pay and some of e lines offer to allow this to accumulate for three ars. In some companies the period may not be entioned, as the duration of leave corresponds with ay in a home port. One company offers a month's liday on full pay every year, and another, while ying the medical officer for periods when off duty, cause the ship is in port or being overhauled, grants so leave on full pay for post-graduate study. One mpany offers a subsistence allowance in addition to ll pay.

The medical equipment on board ship will, of urse, differ with the size of the ship and the length the voyage. The larger ships may carry two rgeons, two sisters, and one or two dispensers. On e smaller ships the doctor may have to work with hospital attendant only, whose duty it may be to ep the dispensary in order, the responsibility of spensing remaining with the doctor. On all the es the medical officer pays for his uniform and metimes for a named list of instruments, while in hers the company is at the latter expense. Drugs e invariably found by the company.

Other points to be noted are that the foreign eamers using British ports are manned by foreign ctors in ordinary circumstances, and that none of e companies extends facilities to the medical officer be accompanied by his wife.

Such is a sketch of a career which, while it possesses general pattern, is clearly open to individual variaons in many of which the medical practitioner may d attractions.

MEDICINE AND THE LAW.

Coroner and Jury: Inquisition Quashed for Irregularity.

ALTHOUGH a coroner is allowed an ample latitude in the conduct of proceedings at an inquest, there are yet a few irregularities of which superior courts will take notice. Thus a Divisional Court had occasion on Oct. 13th to quash a coroner's inquisition and to direct a fresh inquest on the ground that the coroner had entered the jury's retiring-room. The general grounds for quashing a coroner's inquisition are broadly two—some irregularity in the inquisition and verdict or some irregularity on the part of the coroner or jury. As instances of the former class may be mentioned cases where the facts set forth in the inquisition did not warrant the jury's finding, or where the finding was uncertain, or where the word "feloniously" was omitted from a verdict of manslaughter. Instances of the latter class are cases of actual misconduct—as where in 1701 a coroner took some of the jurymen off the inquest after they had been sworn in order that he might influence the verdict—or cases of mere technical irregularity like that of the case which occurred just before the operation of the recent Coroners (Amendment) Act where an inquest was held without view of the body.

The recent case in which the Divisional Court interfered was an inquest held in the Thirsk Division of the North Riding of Yorkshire upon the death of Mr. Walter Tindall, a veterinary surgeon of Stillington, who was knocked down and killed by a motor-car. The coroner's jury last August returned a verdict of "Accidental Death" but added a rider—as juries love to do—saying that they thought there had been a certain amount of negligence and that they desired to censure severely the driver of the motor-car. The motorist, dissatisfied with this finding, got a rule *nisi* for *certiorari* to bring up and quash the inquisition on the twofold ground, first, that the coroner was present in the jury's retiring-room for a quarter of an hour while they were considering their verdict, and took the verdict in private; and, secondly, that the verdict and rider were contradictory. The decision turned upon the first of these grounds. There were two Irish cases in point. In the Ballyragget case (1883) some of the jury had unnecessarily absented themselves from the inquest; they went out into the public streets, and before they delivered their verdict the coroner spent some time with them in private. This was held fatal to the inquisition and there was a similar consequence to the Mitchelstown inquisition (1888) where a coroner not only spent an hour in the jury's room after the jurors had retired to consult upon their verdict but had also committed some irregularity by interfering in the summoning of the jury. In the Mitchelstown case the coroner was told that the jury had agreed, and he thereupon visited them before the verdict was declared; he took the verdict in private and drew up the inquisition before returning into court. These Irish decisions were held to apply to the recent Yorkshire case. No comment was made by the Lord Chief Justice on what the coroner for the Thirsk Division had either said or done. It was not suggested, said Lord Hewart, that the coroner was doing anything other than helping the jury in the discharge of its duty, but, doing so in that place (the jury's retiring-room), he was guilty of misconduct and the inquisition must be quashed. A fresh inquest was ordered to be held before the coroner for the Pickering Division of the North Riding. On behalf of the Thirsk coroner, and in support of the challenged inquisition, it was argued that the real attack was not upon the coroner's presence in the jury's room but upon the jury's rider. It was suggested that the court had power to strike out the rider, in which event the verdict would be unobjectionable; it was also pointed out that the verdict and rider were not really inconsistent; they simply meant that there was carelessness but not criminal negligence. However, as already stated,

the Divisional Court did not pass any opinion upon this aspect of the inquest, there being sufficient ground for upsetting the inquisition upon the irregularity of the coroner's visit to the jury.

Cost of X Ray Photograph: a Gap in the Insurance System.

The benevolence of the pious founders of charitable institutions in England has resulted in traditional acceptance of the fact that the law gives no recognition to the moral duty of paying for services rendered by a hospital. The increasing perils of motor traffic are introducing more and more people to a personal knowledge of the value of our hospital system as well as to a realisation of the wisdom of insurance against accident. Men and women who find themselves under treatment in hospital as the result of injuries received in accidents naturally desire, out of ordinary decent feeling, to make such financial return to the hospital as they can reasonably afford. But they learn to their surprise that their insurance policies do not entitle them to a refund of any hospital fees which they may have paid. The insurance companies repudiate liability on the ground that there is no legal compulsion to make such payments for hospital treatment. Fresh legislation would be necessary to alter the position, unless the companies can be induced to take a more generous view.

A correspondent, whose letter is published in the *Times* of Oct. 21st, gives a fresh illustration of this gap in our insurance system. A chauffeur injured his foot while on duty and the doctor deemed it necessary to have an X ray photograph taken. Subsequently the chauffeur received an account from the hospital for one guinea. He applied to his approved society for assistance towards paying the account, but was informed that it was an additional benefit not covered by their scheme and that, therefore, no grant could be given. The chauffeur's employer, being insured under an employer's liability policy, made a claim thereunder for the cost of the X ray photograph. The underwriters replied that it was a contingency not covered by the policy, since there was no legal liability upon the employer to pay the hospital. Thus either the chauffeur (who cannot well afford it) or the employer (who is in no way liable) must pay out of his own pocket for an item of treatment which one of the two systems of insurance, national or private, should certainly have covered. It is just conceivable that a hospital would be entitled to recover a fee for a specialised service such as the taking of an X ray photograph under the ordinary law of contract, though no fee could be recovered for treatment. But, as is well known, hospitals have to consider whether the privilege of being a plaintiff in certain cases is worth the risk of being a defendant in others.

Osteopath's Unsuccessful Claim for Fees.

The recent action in the Bloomsbury County Court has failed to settle the vexed question whether an osteopath can recover in a court of law the fees which he claims for his professional services. The county court judge decided the case upon issues of fact. In effect he held that the plaintiff's services were worthless; the fees had not been earned, so there was no question whether they could legally be recovered. From this finding of fact no appeal can presumably be made. The question of law thus stands where it did—in a condition of some uncertainty. The action began with the claim of an osteopath for the sum of £30 9*s*. for professional services rendered to the defendant's wife. The plaintiff, who described himself as a doctor of osteopathy, examined and treated the defendant's wife and made charges on the scale of 3 guineas for a consultation and 2 guineas for each single visit, including treatment. The deputy county court judge non-suited the plaintiff. He held that the claim was barred by Section 32 of the Medical Act of 1858, which declares that "no person shall be entitled to recover any charge in any court of law for any medical or surgical advice, attendance, or for the performance of any operation . . . unless he shall prove upon the trial that he is registered under thi Act." The Divisional Court, however, allowed th plaintiff's appeal on the ground that there is a distinc tion between advice and treatment, and that th plaintiff might be able to recover fees for the on though debarred from recovering fees for the othe As the judge in the court below had not provided an material for deciding whether the amount claime could be split up and a distinction made betwee charges for treatment and charges for advice, th Divisional Court sent the case back to the count court for a new trial. Legal opinion is by no mean unanimous that the Divisional Court was righ Advice, say the critics, cannot be severed from treat ment; the patient takes the treatment because of th advice. If a contract contains legal and illega elements and the legal cannot be severed from th illegal, the whole contract ought to be held voi The Divisional Court was following the older case o Hall *v.* Trotter, but in Hall *v.* Trotter the element o advice was apparently absent. Be that as it may the county court judge, to whom the case wa remitted, found himself able to dispose of it withou considering these legal niceties. His honour Judg Hill Kelly stated that he was satisfied that the treat ment given by the plaintiff to his patient could not hav achieved any beneficial results; he came to the cor clusion that the services rendered were wholly useles and he gave judgment for the defendant with costs.

The plaintiff, in giving evidence, described a osteopath as one who by moving bones relieve suffering; in fact, in cross-examination he agreed tha osteopathic treatment was worthless if the sufferin cannot be relieved by moving bones. The patien he said, came to him in March, 1926, after havin benefited by osteopathic treatment at Eastbourn He examined her and found certain bones were not i their proper position. She complained of a pain i her neck, that her tongue was "glued to her mouth in the morning, and that her eyes were very tende She suffered from general debility. He gave trea ment to relieve these conditions and he said that, the patient had been more regular in attending f treatment, she would have been cured of the trouble of which she complained. Sir Herbert Waterhous a witness for the defendant, said that the movemen of bones would not have removed the pain in th eyes of which the patient complained. Another wel known surgeon, Mr. Frank Romer, said that the bon stated to have been moved by osteopaths could n be moved. Dr. J. C. Keats, of High-street, Wanstea who had been the patient's regular medical attendan spoke of the results of his examination of her ar expressed the opinion that the osteopathic treatmen she had been receiving was wholly useless and th she derived no benefit therefrom. This opinion th learned judge adopted. The case indicates that in particular set of conditions a particular osteopat made a claim which could not be substantiate possibly it indicates nothing more. The plaint was careful to distinguish the moving of bones b osteopaths from the mere movement of muscles b massage. This was an opportunity to obtain a judici ruling whether the moving of bones by an unregistere osteopath is or is not an "operation" within th meaning of the Medical Act already quoted. Bu unfortunately the point was not decided.

THIRTY YEARS OF KING EDWARD'S FUND.—Th Prince of Wales was the principal guest at a lunche given at the Mansion House by the Lord Mayor, in co memoration of the thirtieth anniversary of the establis ment of King Edward's Hospital Fund for London, and t work of the League of Mercy. Recalling the achievemer of the Fund, the Prince said that in the last three years had helped to add 1100 beds to the metropolitan hospita and reminded his hearers that one of its committees is present inquiring into the serious question of the provisi of beds for paying patients. In the year of the Fund's ince tion the expenditure in hospitals in London was £700,00 it is now £3,000,000, and the annual distribution has ris from £32,000 to £245,000. The League of Mercy has giv the Fund nearly £400,000, and has, in addition, distribut more than £87,000 to local hospitals outside London.

THE NEW BIOCHEMISTRY BUILDINGS AT OXFORD.

A RECENT gift of £75,000 made by the Rockefeller Foundation for a new department of biochemistry at Oxford solved two problems that had been exercising the minds of those who direct research at the University. One of these was the need of additional accommodation for the Department of Physiology; the other was the claim of biochemistry to adequate recognition in the home of some of its most eminent pioneers. The first chair of biochemistry was endowed by Mr. Whitley in 1920 and was occupied by Dr. Benjamin Moore until his death in 1922. He was succeeded by Dr. R. A. Peters, who has had the good fortune to watch the inception and rapid growth of the new building for which the plans were prepared and the site cleared as recently as 1924. In order to maintain organic contact between the departments of physiology and biochemistry the two sections have in common a large lecture room and a library. The former was actually in use in October, 1925; classes were transferred to the new laboratories in October, 1926, and the move was completed at the end of the year. The school was formally opened on Oct. 21st by Viscount Cave, Chancellor of the University.

THE NEW INSTITUTE OF BIOCHEMISTRY.

In order that the windows might be as wide as possible the narrow spaces between have been treated as pilasters in a classical "order" and the outer walls are faced in aluminous cement. The main walls are of brick and the floors and roofs of reinforced concrete, supported on steel stanchions. Internal partitions are of light but rigid breeze concrete, and are so constructed that they can be moved easily if at some future date rearrangement of the rooms should be found desirable. All the fittings, too, are as movable as possible; drains are regularly spaced, and gas, water, and electric power lavishly supplied. The object is to allow the building to "find itself" in Kipling's phrase, as the teaching and research work carried out in it develops. All the rooms have wooden slats on the walls and beams on the ceilings for the suspension of apparatus, and many are ventilated by fans. There are two electric lifts, and the main staircase, like the outer doors, is of English oak.

On the ground floor is the main lecture theatre, common to the two departments, with a separate preparation room for each. On either side of the passage to the hall lie the unpacking and centrifuge rooms, the refrigerators, lavatories, and stores. Also on this floor are dark rooms for photography and physico-chemical research, a workshop and a room for keeping rats. There are also research rooms.

The two classrooms are on the first floor and are 16 ft. high; they are separated by glass partitions, so that they can be used as one room or two. Thus, if necessary, 100 students could be taught at a time. Leading out of them are preparation and dark rooms and the main balance room. The new library is also on this floor, which like the ground floor, communicates directly with the physiology department. Between first and second floors is a mezzanine, occupying the space left by the great height of the class rooms. Here is a rest room, a room for constant-temperature work insulated by a cork lining, a research room, and the indoor animal house. The last has an asphalt floor and enamelled walls.

The second floor is entirely given over to research work, and will accommodate 20 workers. Besides the various small laboratories it is provided with an aquarium room, an operating theatre, an animal bathroom, a sterilising room, and a flat roof with a small open-air laboratory. The aquarium has been modelled upon that at the Molteno Institute, Cambridge, and its large tank is made of Cambrian slate. Water for the tank is collected from a specially tiled part of the roof and carried through vulcanite fittings.

It will be seen that the new institute is not unworthy of its place in the University. Where Boyle, Hooke, Lower, Mayow, Willis, and Wren worked, but left no school behind them, J. S. Haldane, F. Gotch, and C. S. Sherrington have carried on the tradition of biochemical research under the roof of the physiology

building. Their successors will now have circumstances in their favour, and the authorities feel that the most urgent need at present is for studentships to enable men to stay on for one or two years to be trained in research work. An appeal is made for help in this direction and also for a stable endowment for the research library, at present supported by funds from each of the departments.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

The Dentists Bill.

THE Dentists Bill for the Irish Free State was introduced to the Dail last week for the third time. A warm debate, in which most of the medical Members took part, centred round the clause which gives protection to the dental profession. The clause lays down that it shall not be lawful for any person, on or after the date of the passing of this Act, to practise, or hold himself out, whether directly or by implication, as practising, or being prepared to practise, dentistry or dental surgery, unless such person is a registered dentist. A subsection allows the performance by a registered medical practitioner of any surgical operation in connexion with the tissues of the mouth or jaws, or the giving by a registered medical practitioner of any dental treatment, advice, or attendance in urgent dental cases. Sir James Craig pointed out that the exception in regard to "urgent" cases was impracticable, and that no case had been made for the prohibition of the practice of dentistry by medical practitioners. He was supported by Dr. O'Dowd and Mr. Hennessy and by several lay deputies. Mr. McGilligan, the Minister in charge of the Bill, said that he did not stand by the clause, and that he would leave the decision to the House. It could be discussed further in Committee.

It is unfortunate that a provision establishing a grave precedent in regard to the privileges of the medical profession should have been introduced into a Bill without previous consultation with representatives of the profession. The Bill was drafted in consultation with representatives of the dental profession, and, as far as is known, no independent medical opinion was sought.

Royal College of Physicians of Ireland.

At the annual business meeting of the Royal College of Physicians of Ireland, held on St. Luke's Day, Dr. William Arthur Winter was elected President. The following were elected Censors: Dr. B. Solomons, Dr. F. X. Callaghan, Dr. V. M. Synge, and Prof. J. W. Bigger. The President nominated Dr. Solomons as Vice-President. The several College officers and examiners were elected. In the evening the College dinner was held for the first time since 1921, about 100 Fellows and guests being present. Among the principal guests were the Chief Justice of the Irish Free State, the Provost of Trinity College, the President of the Royal College of Surgeons in Ireland, the President of the Royal Academy of Medicine in Ireland, the Dean of St. Patrick's, and the Archdeacon of Dublin. In the course of the evening a telegram of greeting was received from the Royal College of Physicians of London.

Dublin University Biological Association.

The opening meeting of the Dublin University Biological Association was held in Trinity College last Saturday evening, when the President-elect, Prof. J. W. Bigger, read a paper on the Expectation of Life and the Bacteriological Laboratory. He pointed out that the expectation of life might be increased by postponing the age of death or by preventing avoidable death. In the period 1920-22 the expectation of life was greater by 14 years than in the period 1871-80, and in the last half-century the death-rate had fallen by 21 per cent. He went on to show that the expectation of life had increased side by side with the increase of knowledge gained in the bacteriological laboratory. He showed in the case of several diseases how science had diminished the death-rate. He pleaded for a wider recognition of the value of preventive medicine, and for more adequate provision for research. The paper was discussed by Prof. F. E. Wynne (Sheffield), Prof. E. E. Glynn (Liverpool), Prof. W. St. C. Symmers (Belfast), and Dr. W. L. Treadway (U.S. Medical Service).

Workmen's Compensation.

The senior surgeon to the Meath Hospital, Mr. Lane Joynt, delivered an address to the students of the hospital at the opening of the session on Oct. 14th, on various aspects of the Workmen's Compensation Acts. Considering that the Act has been in force sufficiently long to estimate how it had worked, he found prejudice had been overcome and its benefits were more generally known, the medical profession not always showing to advantage in these cases, and not always aiding the courts as much as it might. Many doctors, he warned his hearers, thought they were hired as fighting men for the particular master who employed them, the attitude, proper in a lawyer, not being in keeping with the traditions of the medical profession. A medical man might be called to give evidence of fact firstly and secondly as to the probable effects of any injury on a man's future health. The latter was a matter of opinion, but should be given regardless of what is affected from a monetary point of view. The insurance companies relieved the employer of his liability under the Act and were bound to protect themselves, and in so doing employed the medical men best qualified not only to give them expert advice but who were accustomed to appearing in legal cases and were not upset by cross-examination. The workman, on the other hand, generally only had the advice and help of a house surgeon or of a practitioner unaccustomed to courts of law, who under cross-examination by skilled lawyers frequently failed to do justice to their patients or themselves. He concluded with reflections that ought to be widely recognised by the public as well as the medical profession. For he pointed out that hospitals reduced the sums insurance companies would otherwise have to pay, and yet the companies did not subscribe anything like an adequate amount. Without the hospital treatment most workmen's injuries would result in life pensions. Artisans and workmen were now in a better position than formerly. The change in the distribution of wealth had an adverse effect on hospital funds, and they were now forced to demand some payment from every patient.

BUCHAREST.

(FROM OUR OWN CORRESPONDENT.)

The Treatment of Epididymitis.

Prof. Bradiceanu recently outlined the method of treating gonococcal epididymitis employed at the Polyclinic in Bucharest. Upon the development of pain in the epididymis all urethral injections are stopped, and the patient is sent to bed and put upon a fluid diet. Free catharsis is ordered, together with mild urinary sedatives. Every second day some protein preparation is injected intramuscularly, and eventually also some gonococcus serum or vaccine is administered. Locally, in the last series of cases experimented upon, belladonna or ichthyol or iodine ointment, or an ester of salicylic acid has been used. The latter is a clear liquid, freely miscible with animal and vegetable oils. Medicinally, it is characterised by the fact that when painted on the unbroken skin it is absorbed and circulates in the blood as sodium salicylate. This drug, when applied to the scrotum once a day, produces a local feeling of warmth, no inflammation of any importance, but occasionally a fine desquamation. Within a period varying from 12 hours to 7 days, the pain is very

largely controlled. As soon as this has been accomlished, swelling of the organ is reduced by the pplication of mercurial ointment locally and iodide f potassium internally, and by careful strapping. n applying the straps, care should be taken at first o confine the testicle to the lower part of the scrotum y a band of adhesive plaster passed tightly around ie scrotum above it. The strips which cover the wer part of the scrotum should begin and end at is circular band as a fixed point, and should be awn tightly at intervals of a few days until the velling has disappeared.

Suicide by Carbolic Acid.

The use of carbolic acid is not a passing fad among nicides, at any rate in the Near East. It is an tablished custom, due primarily to the fact that the gitimate uses of the acid are so numerous that it is sy for almost any person to give a druggist a plausible ason for its purchase. Death by carbolic acid is eath by torture, but the would-be suicide who is in al earnest does not stop to bother himself about a w moments or a few hours of agony. The umanian Pharmaceutical Association favours the assing of a new law regulating the sale of this ison, and the council will do well, says the *Clujul edical*, to give the proposal careful consideration. is said that the placing of restrictions upon the e sale of concentrated solutions will do much od, with little inconvenience to the public, asmuch as the more dilute solutions are perfectly tisfactory for most legitimate uses. The conntrated solutions are fatal, but the weaker solutions e not very dangerous. There is reason to believe at a properly framed ordinance would reduce the mber of suicides.

Prohibition of Alcohol in Medicine.

An effort is to be made by the Bucharest Council Public Hygiene to direct legislation to prohibit e sale of such patent medicines as contain alcohol excess of the quantity sufficient or absolutely cessary to preserve them. At a recent meeting the Council the question was again discussed in its bearings and analyses were produced of several the well-known patent medicines, most of them foreign origin, which proved somewhat of an eyeener for some of those present. It was abundantly own that there was from 14 to 40 per cent. of alcohol many of these preparations, and that it was thing more than the brandy habit which caused many people to patronise these so-called cure-alls l vitalising liquors. For years the medical press s been calling attention to the fact that their rtues, if there were any, were merely due to the ohol they contained, and it is gratifying that sistent and consistent agitation has brought the porters of temperance into line, and that they uniting as a body in controlling the evil.

LEICESTER ROYAL INFIRMARY.—It has become essary to reconstruct the central ward, the last of the inal wards of 1861. Of the 80 patients displaced during rebuilding, 30 will be provided for in a temporary ward ch is already under construction, and it is hoped to mmodate the remainder in the Hospital Saturday ety's convalescent homes.

NEWCASTLE INFIRMARY ENLARGEMENT. — The ernors of the Royal Victoria Infirmary, Newcastle-upon-e, find themselves compelled to face an expenditure £150,000 for its extension. Since the building was ed in 1906 the number of in-patients has nearly trebled, patients have increased sevenfold, and now average a day; and where, 21 years ago, there were 4000 operas there are now nearly 14,500. The hospital is badly crowded, yet the waiting list numbers more than 2000. large expenditure contemplated is made immediately ssary by the expiration at the end of March next of lease of the adjoining buildings of the Ministry of sions Hospital when they revert to the infirmary. They t then be so adapted as to provide a large number of , extend the out-patient department, and afford insed accommodation for nurses and domestic staff. The mary, which serves the counties of Northumberland and ham, with a population of two millions and a quarter, is only teaching hospital between Leeds and Edinburgh.

Public Health Services.

LIVERPOOL PORT SANITARY AUTHORITY: ANNUAL REPORT.

IN his interesting report for 1926 Dr. A. A. Mussen mentions 5613 visits of inspection that were paid to ships, of which 930 had nuisances on board on one or more of their visits; there were 3099 dirty forecastles, but only 251 foul water-closets (last year he reported 681). He devotes a chapter to the hygiene of crew spaces, in which he remarks that accommodation for crews is improving and is now often at the after end of ships, where men get more room, better ventilation and lighting, and less weather stress. He has accumulated evidence about conditions in the larger cargo ships with white crews that use the port of Liverpool, and found that of the 187 ships built before 1916 only 20 per cent. had their crew accommodation aft, while of the 211 built since 1916 70 per cent. were thus constructed, the seaman in most of the modern ships no longer living in the forecastle. Other improvements to be noted were cubicles fitted in 28 per cent. of the 211 newer ships, the former proportion being 1·8 per cent.; mess rooms in 63 per cent. against 12; washhouses (or wash places) in 92 against 66; baths in 7·5 against 0·5; and hospitals in 50 per cent. against 24. Similar improvements were made in ships for lascar and mixed crews, and in the smaller cargo steamers as well. We still know too little of the diseases from which seamen suffer, beyond what can be learned from the Board of Trade's annual return of their deaths, but in this report we are told what infectious diseases occurred among the large number of crews and passengers during the many voyages of the ships that reached Liverpool during the year. Of the 237 malaria patients, 202 were seamen; of 91 with pulmonary tuberculosis, 41; of 23 "other tuberculosis," 12; of 65 with chicken-pox, 28 were passengers, the ship's doctor and 36 natives supplying the balance; of 59 with measles, 7 were seamen; of 58 with pneumonia, 36; of 41 with enteric, 30; of 5 with smallpox, 3; of 4 with plague, all were seamen, but no plague case was landed at Liverpool. From this we may gather that the infectious diseases that most affected seamen were malaria, tuberculosis, pneumonia, and enteric fever—plague has always been recognised to be a special risk of seamen.

The fear of plague arose in Liverpool during the year on two separate occasions. A boy was, on August 28th, admitted to the Northern Hospital, Liverpool, where he died in two days of the disease, no case having occurred in the city for several years. His father visited the hospital, was examined and found to be suffering from plague, with a small inguinal bubo. He recovered in three weeks. This father was a watchman in the South Dockyard. The most exhaustive and careful search for plague rats was at once undertaken, both in port and city; none was discovered. While attention at the docks was thus focused upon plague, the ss. *Zaria*, on her way to the port from Lagos, West Africa, reported, on Sept. 10th, that two native firemen had died on board from plague, each with a bubo and high fever. The *Zaria* arrived at the port on Sept. 12th, and was met and inspected by the assistant port medical officer, three sanitary inspectors, two rat catchers, and two rat searchers. Naturally every person on board was carefully examined, but no case of plague was found, nor did any develop later. The ship and her cargo were dealt with thoroughly, and she was fumigated. One hundred rats were found on board her, 42 of them were dead, 38 were trapped, and 20 killed by hydrocyanic acid fumigations; 31 per cent. were plague-infected. Thorough precautions were taken to prevent infection of the rats ashore, and apparently with success, for no plague rat was found among the 6805 from the city and port examined during the year. Captains of ships now report by wireless if they have any infectious or suspicious case on board

or have been within two months in a suspected harbour; thus much time is saved to them, medical inspection being carried out immediately on arrival. The rats captured and destroyed were, on ships 36,265, on the quays 2562, and in the city 16,185, in all 55,012, a number 6000 less than in 1925, so perhaps the active and persistent campaign in Liverpool is at last reducing the rat population. As usual there were few black rats ashore, few brown rats afloat. No mention is made this year of the new rat-guard for hawsers recommended in the last report, but valuable original observations by two rat-catchers on the evidences of rat infestation on ships are given. Thus they report that one rat in 24 hours ate out the soft portions of 425 grains of maize. Now that is a quarter of a pound, and maize costs 35*s*. a quarter (480 lb.), so the 18,747 rats killed in Liverpool in city and port in the year, if they had lived there only three months, had already eaten, measured in maize, £1550, and the 36,265 in ships, £3000. Besides there is the damage they cause. So the campaign for their reduction has financial value, as well as sanitary reason.

The venereal clinics have this year been attended by larger numbers; 1360 new cases were seen in the seamen's dispensary; we gather that not all were seamen. Some 15 per cent. attend but once, and another 15 per cent. discontinue treatment before they are non-infectious. Of every 10 cases 3 were syphilis, 6 gonorrhœa, and 1 soft chancre. Lectures are given on the dangers of venereal disease in the first-aid and hygiene courses for mercantile marine cadets, and also to boys elsewhere in the city. The 17,781 aliens examined were almost all from North America and were clean; only ten certificates of rejection were issued. The medical inspection room wanted last year has been obtained. Half the emigrants and other passengers leaving Liverpool went to Canada. Verminous transmigrants are dealt with at the city hospitals. Emigrants, second or third class, for the United States are inspected by officers of the U.S. Public Health Service. All emigrants are inspected by the medical officers of the Board of Trade (23 were rejected for infectious disease), also the crews of all vessels bound for America.

The new Public Health (Imported Food) Regulations, 1925, have greatly simplified the work of meat inspection; 340 tons of meat were condemned for faulty preservation, 88 tons of canned goods, 2000 tons of fruit, 2000 tons of cereals. Anyone can see that much illness of many sorts has been spared the public by the admirable work of this port sanitary authority.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED OCT. 15TH, 1927.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 124 (last week 149); scarlet fever, 2463; diphtheria, 1271; enteric fever, 81; pneumonia, 849; puerperal fever, 37; puerperal pyrexia, 114; cerebro-spinal fever, 4; acute poliomyelitis, 23; acute polio-encephalitis, 4; encephalitis lethargica, 19; dysentery, 5; ophthalmia neonatorum, 104. No case of cholera, plague, or typhus fever was notified during the week.

Of the cases of acute poliomyelitis and acute polio-encephalitis taken together, 5 were notified from the East Riding of Yorkshire (2 only of these from Kingston-upon-Hull), the remainder distributed widely over the country.

Deaths.—In the aggregate of great towns, including London, there was no death from small-pox, 1 (0) from enteric fever, 14 (0) from measles, 5 (1) from scarlet fever, 6 (3) from whooping-cough, 32 (5) from diphtheria, 72 (12) from diarrhœa and enteritis under 2 years, and 51 (7) from influenza. The figures in parentheses are those for London itself. The number of stillbirths registered during the week was 231 in the great towns, including 34 in London.

Correspondence.

"Audi alteram partem."

PLACE-IN-FAMILY AND DISEASE.

To the Editor of THE LANCET.

SIR,—I have read Dr. Still's lectures with muc interest. It appears to me futile to attempt a investigation of this most interesting problem unle full account is taken of the healthy-remaining membe of a given community. Dr. Still clearly sees th difficulty, as stated on page 796, but I think he brush it aside too lightly. Let me illustrate my objectio

TABLE I.

No. of families.	Children in each.	Total children.	Place-in-family.				
			1st.	2nd.	3rd.	4th.	5th
400	1	400	400	—	—	—	—
300	2	600	300	300	—	—	—
200	3	600	200	200	200	—	—
100	aver. 5	500	100	100	100	100	10
1000	—	2100	1000	600	300	100	10

All the figures are, of course, merely assumption nevertheless, they will illumine the point. Leavi out of account the childless families, neglecting al here for simplicity's sake miscarriages and st birth, the number of families with one child is evident

TABLE II.—*Incidence of Disease.*

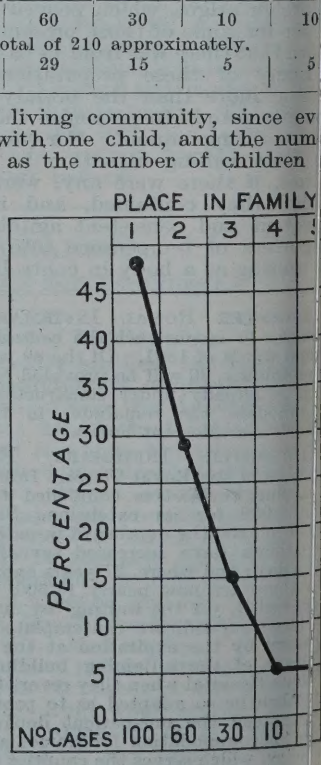
Place-in-family—	1st.	2nd.	3rd.	4th.	5th
	40	—	—	—	—
	30	30	—	—	—
	20	20	20	—	—
	10	10	10	10	10
Total (= 210).	100	60	30	10	10
Per cent. of total of 210 approximately.					
	48	29	15	5	5

the largest in every living community, since ev family has to begin with one child, and the num of families decreases, as the number of children family increases.

Let us assume a community of a thousand families, of whom 400 have one child, 300 have two children each, 200 have three children each, and 100 have more than three children, say average 5. We then get the results shown in Table I.

Now let us assume that there is an incidence of disease *unaffected* by place-in-family, or age, and that this amounts to 10 per cent. of the children. We then get results as shown in Table II.

Entering these into Dr. Still's schema we get a curve, which I show here, very similar to Dr. Sti



he exact shape of which will, of course, depend ntirely upon the ratios of the families with ifferent number of children one to another.

I contend that unless the exact number, and ence the proportion of the unaffected children, is scertained, no reliable results can be calculated.

I am, Sir, yours faithfully,

A. WOHLGEMUTH, D.Sc. Lond.

Shortlands, Kent, Oct. 22nd, 1927.

To the Editor of THE LANCET.

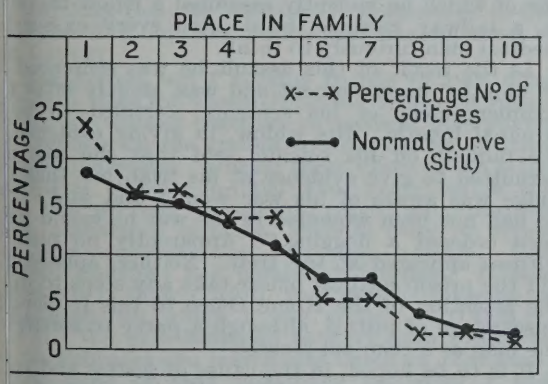
SIR,—In an investigation last year into some of ıe circumstances associated with the development goitre in children, included in the annual report the school medical officer for Lancashire, I noted ıe position in the family occupied by the goitrous ıild. The mothers were closely questioned as to ıeir children and all pregnancies were included so r as their memories went. As the interrogation ok up considerable time only 90 families, containing 5 goitrous children, were investigated (360 cases goitre were noted among 2600 children examined) that the material needs expansion. It is interesting compare the figures (shown in the table) obtained r these goitrous children with the standard dis- ibution suggested by Dr. Still in his Ingleby Lectures.

able showing percentage of all Goitrous Children Occupying Position in Family Stated.

(A) = Standard (Still). (B) Goitre (Cronk).

	Position in family.									
	1	2	3	4	5	6	7	8	9	10
() ..	18·5	16·1	15·4	13·4	10·8	7·5	7·6	3·9	2·1	1·7
() ..	23·4	16·6	16·6	14·0	14·0	5·2	5·2	2·6	1·7	0·9

In the graph which I have drawn from this table i will be seen that children from the first to the fifth i: lusive appear more liable to acquire goitre than



o ers. This suggests that the environment, particu- l y food, has a good deal to do with goitre, since the f ily circumstances immediately become straitened w h the arrival of children and improve again as s n as a child attains the age of 14 years and starts e ning, as they all do in this district.

I am, Sir, yours faithfully,

shton-on-Mersey, Oct. 19th, 1927. H. L. CRONK.

To the Editor of THE LANCET.

SIR,—In relation to Dr. Still's articles on Place-in- F nily as a Factor in Disease, there is an interesting p nt in pre-Napoleonic French law. Under this c e the *second* of twins was considered to be the h r. This was founded upon a theory of conception, b ; the underlying fact may have been that the second t be born proved to be the healthier. This I have n means of verifying.

I am, Sir, yours faithfully,

indon, Oct. 24th, 1927. A. R. MCCLURE, M.B.

ADRIAN STOKES MEMORIAL FUND.

To the Editor of THE LANCET.

SIR,—At a meeting held in Trinity College, Dublin, on Oct. 17th, with the Provost in the chair, it was decided to inaugurate a memorial to the late Prof. Adrian Stokes, who died of yellow fever, contracted during research work on that disease in Lagos.

It was the opinion of the meeting that Stokes's connexion with Dublin and with Trinity College—as student, as assistant to the professor of pathology, and as professor of bacteriology—could best be commemorated by the foundation of a scholarship, prize or medal, in connexion with the study of pathology and bacteriology in Dublin University. An executive committee was appointed and was empowered to collect funds and to consider a suitable form of memorial, the exact form of which will depend on the amount collected.

Those who would like to take part in the establishment of such a memorial to one of Trinity's ablest and most loved sons are invited to send their subscriptions to the hon. treasurers of the fund: Mr. Robert Russell, S.F.T.C.D., and Prof. A. F. Dixon, Sc.D.—We are, Sir, yours faithfully,

SETON PRINGLE, F.R.C.S.I.,
JOSEPH W. BIGGER, M.D.,
Hon. Secs.

School of Pathology, Trinity College, Dublin, Oct. 19th, 1927.

BILATERAL ARTIFICIAL PNEUMOTHORAX.

To the Editor of THE LANCET.

SIR,—The very interesting account by Dr. McLaughlin in your issue of Oct. 1st of a case of bilateral pulmonary tuberculosis treated by bilateral artificial pneumothorax credits me with having been the first to publish the method. I always thought this was so until recently, when it was brought to my notice that Prof. Ascoli,[1] of the University of Catania, Sicily, proposed it at the International Tuberculosis Congress held in Rome in 1912, the year in which I treated my first case. The reasons he gave for the treatment, with an account of cases treated, were reviewed by his pupil, Fagiuoli,[2] in 1914. Ascoli argued that since a pneumothorax was pathological, in a case of tuberculosis treated by pneumothorax, two pathological conditions were present; that complete collapse might, therefore, make the conditions worse than those it was intended to relieve, and that better results would likely be obtained by bilateral "low pressure pneumothorax." On the other hand, I maintained that in consequence of the pressure in the pneumothorax being the same throughout the cavity, a differential effect which has been termed "selective pneumothorax"[3] or "pneumothorax electif"[4] is produced, and that this results in the lung expanding according to its elasticity. The healthy parts, therefore, expand freely, bulging into the cavity and displacing the gas which finds lodgment over the diseased parts. These having lost their expansile properties remain quiet instead of being pulled against the expanding chest wall. If these points of view are considered, I think it will be generally conceded that that of Prof. Ascoli is largely empirical, while mine has a definite physical basis, which brings the method of treatment into line with the rest treatment of other forms of tuberculosis. However, to Prof. Ascoli must be given the credit of having first published the method.

I am, Sir, yours faithfully,

WM. PARRY MORGAN.

Welsh National School of Medicine, Cardiff, Oct. 22nd, 1927.

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[1] Ascoli, M.: Deutsche med. Wchnschr., 1912, xxxviii., 1782–1784.

[2] Fagiuoli, A.: Ztschr. f. Tuberk., 1914, p. 547–559.

[3] Barlow and Cramer: Amer. Rev. Tub., 1922, vi., 75.

[4] Bernou, A.: La Via Médicale, Oct. 24th, 1924.

THE BIRTH CONTROL INVESTIGATION COMMITTEE.

To the Editor of THE LANCET.

SIR,—There is no reasonable doubt that birth control is practised by a large number of married people of all classes. It is to be supposed that the usage may have important effects on the physical, psychological, and ethical well-being, not only of the individuals who employ it, but also indirectly on the well-being of the children of those persons, and therefore of the whole community. It is also probable that if birth control is desirable, some methods are to be preferred to others, yet up to the present little scientific study has been made, either of the comparative advantages of different methods, or of the possible far-reaching effects of the practice as a whole.

The subject of birth control has, hitherto, not formed part of medical education, and, generally speaking, any professional knowledge that medical practitioners may have of this question has been acquired in response to a demand from their individual private patients. In hospitals and medical schools, general instruction in this subject is not as a rule given to the students, nor information to patients. Yet it is well known that in certain cases of ill-health further pregnancies are clearly contra-indicated on medical grounds alone.

A committee composed of scientific workers and members of the medical profession, assisted by lay workers and others interested in the problem, has been formed to promote the scientific investigation of birth control. The members of the committee differ widely in their opinions as to the desirability of birth control, but are united in the realisation that the practice is widespread, and that the scientific problems which it raises can no longer be ignored. It is realised that the results of the investigation may show that no entirely satisfactory method has at present been discovered, and work is being done to find new methods. It is hoped also that relations may be established with clinics and other organisations connected with birth control abroad, so that their experience and knowledge may be used.

The committee serves no propagandist function, but desires only to establish facts and to publish these facts as a basis on which a sound public and scientific opinion can be built. The present division of medical opinion and the lack of any orthodox medical teaching on the subject are largely explained by the absence of available data, on which a sound opinion can be formed. The committee will be grateful if any of your readers who may be interested in the subject, or who possess data that would yield information, would communicate with the honorary secretary of the committee, the Hon. Mrs. Marjorie Farrer, 41B, Clanricarde-gardens, London, W. 2.

A questionaire has been prepared by the committee which, if filled in in sufficient numbers and in a sufficient variety of cases, will provide that quantity of accurate statistical information which is now lacking. As many of these questionaires as may be required will be sent to any private doctor, hospital, welfare centre, or infirmary, on application to the honorary secretary of the committee.

I am, Sir, yours faithfully,

HUMPHRY ROLLESTON,
Chairman.

Oct. 25th, 1927.

PAYMENT TO HOSPITALS FOR MOTOR ACCIDENTS.

To the Editor of THE LANCET.

SIR,—At a meeting of the Norfolk and Norwich Hospital authorities reported in THE LANCET on p. 892 last week, "it was pointed out that a private practitioner to whose surgery a motoring victim was taken could send his bill to the insurance company, and that the hospital could put itself in the same position as a private practitioner by sending all its motor cases to the new paying ward."

It would be of great interest to hear whether this statement is based on legal opinion, and if so, to read the question submitted together with the ans given. Up to now it has always been taken that contract, if any, is between the private practiti and the victim, and that the same situation ap in the case of the voluntary hospital, whether victim goes to the general or private wards. Bu the majority of cases the victim is not in a condi to enter into any contract before treatment therefore a legal contract cannot be brought existence. How will putting the victim in a pri bed get over the difficulty?

I am, Sir, yours faithfully,

Hove, Oct. 25th, 1927. E. ROWLAND FOTHERGIL

"HIVES."

To the Editor of THE LANCET.

SIR,—In THE LANCET of Sept. 24th, p. 664, notice of Dr. W. W. Duke's book on "Allergy Anaphylaxis," your reviewer asks for a definitio the uncommon expression "hives." This is but of the many words, now considered American, w were once common in this country, and are still t heard as local idiom. "Hives" is the current t in Ulster and probably elsewhere for the urtic eruption produced by the harvest bug (*Le autumnalis*). It thus comes to mean any vesicular eruption produced in protein-sens testing. I am, Sir, yours faithfully,

J. JOHNSTON ABRAHA

Harley-street, W., Oct. 25th, 1927.

THE CASE OF GEORGE JORDAN.

To the Editor of THE LANCET.

SIR,—This case of an ex-Service man who rece a shrapnel wound of the head during the wa fragment remaining in the brain which could no removed by operation) which produced occasi attacks of Jacksonian epilepsy and mania, du one of which he violently assaulted a fellow trav in a railway carriage, must give every ex-Ser medical man furiously to think.

As the result of this assault he was sentence 18 months' imprisonment and was, shortly after commencement of his sentence, certified to criminal lunatic. His widow, in giving evidenc the inquest on his suicide, said that she was permitted to give evidence at his trial, but that judge was aware of his war wound and said: he had not been wounded in the war he would been ordered a flogging." Apparently no me witness appeared at the trial. Neither, appare did the prison medical officer take any steps to the attention of the Home Office to this intole miscarriage of justice, although a party to certif the man as a criminal lunatic.

It is to be hoped, in the cause of justice and petency, that this case will be fully investigated, both judge and police and prison medical off be given an opportunity of explaining their appar inexplicable conduct.

I am, Sir, yours faithfully,

H. WANSEY BAYL

Harley-street, W., Oct. 21st, 1927.

*** We comment on this case elsewhere.—ED L

THE REPORT ON SCARLET FEVER.

To the Editor of THE LANCET.

SIR,—I have to thank Dr. J. A. Milne for dra attention to an error on page 9 of the recently iss report of the Ministry of Health on scarlet fe Carbolic lotion 10 per cent. is there referred instead of carbolic oil, as it should have been wri and is written on other pages which described technique of the Milne treatment as introduced his father, the late Dr. Robert Milne.

I am, Sir, yours faithfully,

Oct. 24th, 1927. ALLAN C. PARSON

MISLEADING QUALIFICATIONS.

To the Editor of THE LANCET.

SIR,—All Fellowships in medicine and surgery rank higher qualifications, and the vast majority of llows of the Irish and Edinburgh Royal Colleges Surgeons take pride in their particular Fellowship using the correct letters F.R.C.S.I. and F.R.C.S.Ed. the surgical world the English Fellowship is ognised to be the highest surgical distinction; it a compulsory passport to admission to honorary gical appointments in all teaching English hospitals, d many Edinburgh and Irish Fellows endeavour obtain it after acquiring their own. It is doubtful the Edinburgh Fellowship can be regarded as a rely surgical distinction; it is open to practiners practising dentistry, midwifery, gynæcology, d other kindred subjects on examination in their n specialty plus an examination in general surgery, d there is no primary examination in anatomy and ysiology, nor a compulsory examination in operans on the dead body.

In regard to designations, F.R.C.S. states that a ctorate of Medicine is on a parallel with a Fellowp. A doctorate once conferred cannot be taken ay; a Fellow can be deprived of his Fellowship infringement of the particular regulations perning to his own College. A truer comparison in ms used is that between Fellowships of other Royal leges or Societies. In regard to science distinctions, Fellowships of the Royal Society of Edinburgh and of the Royal Society, London, are high distinctions, but the latter, of course, by far the more exclusive; F.R.S.E. is rigidly used in designating the former; to omit the E is to presume a much higher distinction.

Similarly in England anyone who is not an English Fellow, but who designates himself only as F.R.C.S. in hospital and other publications, renders himself subject to the suggestion that he wishes the public to think, as in point of fact they do, that he is in possession of the higher qualification. This is misleading; is it not unethical?

As this subject involves all the Fellowships, it is one which could be settled by the councils of the Royal Colleges concerned by a mutual agreement on the designations which they expect the various Fellows to adopt.—I am, Sir, yours faithfully,

Oct. 17th, 1927. ETHICS.

To the Editor of THE LANCET.

SIR,—I read with interest the remarks of F.R.C.S. in your issue of Oct. 15th. There is still an idea prevalent in London that the Edinburgh F.R.C.S. is a walk-over. If anyone goes up with that idea he will get a rude shock and a polite request to come again. As far as I am able to judge there is no material difference between the standard of the Edinburgh F.R.C.S. and the final of the F.R.C.S. Eng.; indeed the requirements in pathology are often considered to be higher in the Edinburgh examination.

I am, Sir, yours faithfully,

Oct. 19th, 1927. NOT YET F.R.C.S.

Obituary.

E LATE MAJ.-GEN. SIR WILLIAM MACPHERSON.

ir Patrick Hehir writes: "I esteem it a great our to be allowed to add a few remarks regarding late Maj.-Gen. Sir William G. Macpherson to the prehensive obituary notice that has appeared in E LANCET.

Macpherson and I became friends in 1906 after return from the Russo-Japanese War, and subsentlv we worked together on medical manœuvres exercises on the ground without troops on large medium scales. During these exercises he acted Medical Director-in-Chief and, years before the at War we were already (on paper) using hospital ns, ambulance columns, hospital ships on rivers other appurtenances of modern warfare. One hese exercises has particular interest. It was ied out in March, 1913, and was the invasion of hanistan, on which I was acting as D.D.M.S., f C. We were supposed to start from Peshawar y in February and march into Cabul on June 26th. the close of that imaginary campaign I had ral ambulance columns, two ambulance trains, two hospital ships on the Cabul River. By an aordinary coincidence I was P.M.O. of the 1919 hanistan campaign, and although we did not ance beyond Dacca, the war, from the medical t of view, was conducted on much the same lines n the exercise referred to, the only notable differ: being that the river was not used as it is navigable in the early months of the year; 1919 campaign began in May and ended in ust.

During the Great War we were brought into nate relations. I was attached to Lieut.-General Arthur Sloggett, Director of Medical Services of Armies in France, for instructional purposes. w what was being done with the 21 hospital ns, the 15 ambulance columns, the clearing itals, and field ambulances of the British Armies he beginning of the second Somme enterprise. way these were being concentrated behind the t lines at the exact spots necessary, as if by magic, medical efficiency in the field developed to the highest pitch of perfection. In his war work Macpherson was a constant source of inspiration to others."

Westward Ho, Devon, Oct. 23rd, 1927.

JOHN RUDD LEESON, M.D. EDIN., J.P.

Dr. J. R. Leeson's death on Oct. 23rd removes a medical man with a high record of public service. His early years as a student are described in a book published last spring at the time of the Lister centenary. Born in 1854 he entered St. Thomas's Hospital about the time when the new buildings by Westminster Bridge came into use, and he could testify from personal experience to the ravages of septic diseases even in institutions whose arrangements were as perfect as they could be made before the recognition of Lister's discoveries. In those days the medical curriculum occupied only two and a half years, the first of which was spent in dissection and attending lectures. Towards the end of this training Leeson asked a member of the staff, the great Charles Murchison, how best he should spend the remainder and Murchison unexpectedly advised him to go to Edinburgh and study the new methods of Prof. Lister. He took this advice and in 1873 became one of Lister's dressers, soon falling under his influence and becoming an earnest disciple. After qualification in 1875 and study at Vienna and Berlin, he returned to London to join the resident staff of St. Thomas's Hospital, where he became demonstrator in anatomy in 1878. He served for a time as ship's surgeon, graduated as M.D. Edin. with commendation in 1882, and settled in practice at Twickenham, where he spent the rest of his life, being associated especially with the St. John's Hospital and the Metropolitan and City Police Orphanage. Always a keen observer, Dr. Leeson wrote freely not only on medical subjects, but on geology and natural history. He was a Fellow of the Royal Astronomical, Royal Microscopical, Geological, and Linnean societies, and was also interested in many aspects of social work. At the time of his death, in his seventy-fourth year, he was Mayor of Twickenham, a magistrate for Middlesex, and a member of the Court of the Salters' Company.

Dr. Leeson was twice married. His son, Mr. Spencer Leeson, is headmaster of Merchant Taylors' School.

Medical News.

UNIVERSITY OF DUBLIN: SCHOOL OF PHYSIC, TRINITY COLLEGE.—At recent examinations the following candidates were successful :—

FINAL MEDICAL EXAMINATION.

Part I. Materia Medica, Medical Jurisprudence, Pathology, &c.—M. H. Fridjhon, R. St. J. Lyburn, H. T. Fleming, W. R. Johnston, J. N. U. Russell, J. E. C. Cherry, A. J. Garde, R. M. Wilson, C. R. Harris, R. I. Reid, C. King, J. F. K. MacCarthy-Morrogh, A. H. O'Malley, Anna M. J. M'Cabe, and F. S. Mackenna.

DIPLOMA IN PUBLIC HEALTH.

Part II.—Kathleen M. Kennedy, Meave Halligan, Sarah M. Coghlan, and Brenda M. Young.

UNIVERSITY OF EDINBURGH.—At a graduation ceremonial held on Oct. 22nd the following diplomas were conferred :—

D.P.H.—Walter T. de Silva, Eric F. Dott, Ronald A. Macdonald, Donald P. MacIver, John Macleod, and Elizabeth P. M'Whirter.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH, ROYAL COLLEGE OF SURGEONS OF EDINBURGH AND ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.—At recent examinations the following candidates were approved :—

FINAL EXAMINATION.

M. M. Wright, F. A. Buttner, Theophilus Lotter, M. A. H. Gohar, K. R. Mali, G. D. Roche, M. M. Farghaly, K. R. Trembath, P. McK. Logan, Samuel Jurawan, T. B. Dobson. Supiramamain Kulanthaivalu, Ponniah, Ram Chandra Adhikari, John S. T. Isbister, George M. Johnson, Clarence D. C. Golding, Albert A. Huse, Sandaman Sivalingam, Ramanather Kandish, Suppiah Kanagalingam, Israel, Gurland, Edmund A. Bulankulane, Arnold W. Green, Bola Dayanand Rao, Walter Campbell, Alexander C. Lovett-Campbell, William Jackson, Joseph W. A. McGuinness, Adam S. Gordon, Thomas A. W. Wilson, William T. A. Pearce, Tan Chang Yan, Geoffrey W. Milledge, William Ainlsie, and Alfred Bitini Xuma.

Medicine.—Ellaman Siva Rama Menon, Mohamed Ralman Ramjohn, Arthur B. Anderson, Herbert F. W. Slane, Ramchandra Ganesh Paranyape, Bertram J. Ess, Simathamby Chelliah, Veerasekeram Sinnetamby, and John E. Felix.

Surgery.—David A. Herd, Frederick H. Emery, James Masilamani, Maurice Klar, and William Wallace.

Midwifery.—David A. Herd, Cyril A. Munro, Agnes Donaldson, Ellaman Siva Rama Menon, Sundar Singh Nagi, Arthur B. Anderson, Herbert F. W. Slane, Sinnethamby Chelliah, Joseph M. Chittambatam, Hubert Lelizab Clement de Silva, and George R. Gardner.

Medical Jurisprudence and Public Health.—George Henderson, Norman J. W. Smith, Matthew I. Mullen, Ewen L. Fraser, Andreas Johannes de Villiers, Ramchandra Ganesh Paranyape, Wilfred Kelly, Gavin W. Campbell, and Mark Lessnoff.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.—At a meeting of the College held on Oct. 19th Mr. Alexander Miles was elected President for the ensuing year, Dr. A. Logan Turner Vice-President, and Mr. John William Struthers Secretary and Treasurer.—The following 25 successful candidates, out of 93 entered, who passed the requisite examinations on July 28th, were admitted Fellows :—

John M. Bassett, William A. Blomfield, William M. Brown, John H. Couch, Albert F. W. da Costa, Hari Dass, George F. Duggan, Caroline A. Elliott, Gilbert M. Irvine, William H. G. M. Ling, Henry C. Lowry, Robert R. Macintosh, Ian Macpherson, Richard B. Martin, Robert S. Melville, Angus J. Murray, John S. Ramage, Bunganath Krishna Rau, Eugene J. Ryan, Richard Vyayaratram Nevins Selvadurai, Matthew A. Swan, Thomas E. Stoker, Beriah M. G. Thomas, James Troup, and James N. Young.

At recent examinations the following candidates were successful :—

FINAL EXAMINATION FOR L.D.S.

Athelston E. Thornhill, Robert C. B. Heele, Norman A. W. Ramage, Gladys E. Munro, Alastair D. Walker, Annie M. Kean, Charles J. Hodge, Alexander H. Brown, and Thomas S. Macfarlane.

Pathology.—Mary M. Hunter, Francis P. MacGillivray, Ronald McA. Blair, William G. Hetherington, Joseph G. Medcalf, Jean F. Miller, and Roger H. White.

Medicine.—Mary M. Hunter, William G. Hetherington, and Robert M. Cameron.

Surgery.—Mary M. Hunter, William G. Hetherington, and Robert M. Cameron.

Dental Subjects.—Ronald D. Allison and Thomas W. Gregory.

BRISTOL GENERAL HOSPITAL NURSES' HOME.—Sir George Wills has presented a home for the nursing staff in memory of his wife. The building, which will be known as the "Susan Brittan Wills Home," and has just been opened, will accommodate 31 nurses.

SOCIETY OF APOTHECARIES OF LONDON.—At recen examinations the following candidates passed in the unde mentioned subjects :—

Surgery.—R. P. Charles, King's College and Charing Cro Hosps.; H. J. Harcourt, St. Thomas's Hosp.; B. D. Jai Charing Cross Hosp.; D. I. Jones, University College ar St. George's Hosps.; T. M. Joseph, London Hosp.; ar L. M. Saunders, Manchester.

Medicine.—J. D. Evans, St. Mary's Hosp.; G. Furnis Manchester; S. Goldman, London Hosp.; F. G. Hardake St. Mary's Hosp.; A. W. Lassowsky, Middlesex Hosp J. D. Ritchie, St. George's Hosp.; G. C. Rhys-Jone Charing Cross Hosp.; and S. Slotar, Guy's Hosp.

Forensic Medicine.—H. B. Blaker, St. Mary's Hosp.; J. Evans, St. Mary's Hosp.; T. M. Joseph, London Hosp J. D. Ritchie, St. George's Hosp.; B. Rosenzvit, Middles Hosp.; A. E. Vawser, London Hosp.; and L. Was Manchester.

Midwifery.—G. E. Bent, Manchester; H. B. Blaker, St. Mary Hosp.; H. M. Feldman, Leeds; D. I. Jones, Universi College and St. George's Hosps.; A. A. Leibovitch, Khark and London Hosp.; H. T. Rylance, Middlesex Hosp.; a V. R. Smith, Manchester.

The Diploma of the Society was granted to the followi candidates, entitling them to practise medicine, surgery, a midwifery: R. P. Charles, J. D. Evans, S. Goldman, F. Hardaker, B. D. Jain, G. C. Rhys-Jones, J. D. Ritchie, Rosenzvit, S. Slotar, and V. R. Smith.

WEST LONDON HOSPITAL POST-GRADUATE COLLEG The lecture-demonstrations given twice a week at t College are open to practitioners who are not taking t regular post-graduate courses. Particulars may be fou in our Medical Diary week by week.

HUNTERIAN SOCIETY.—On Monday, Nov. 7th, 9 P.M., at the Cutlers' Hall, there will be a discussion on t Legal Perils of the Doctor. The speakers will inclu Earl Russell, Dr. James Neal, Mr. Rayner Goddard, a Sir Herbert Waterhouse.

ROYAL SANITARY INSTITUTE.—A sessional meeti will be held at 90, Buckingham Palace-road, London, S.W on Tuesday, Nov. 8th, at 5.30 P.M., when Major H. Bar will give an address entitled the Royal Commissions Health and Housing: A Retrospect and a Forecast.

ROYAL SOCIETY OF ARTS.—On Wednesda Nov. 16th, at 8 P.M., Dr. Leonard Hill, F.R.S., will give address on Overcrowding in Public Conveyances. T meeting will be held at the Society's House in John-stre Adelphi, London, and Lord Dawson will take the chair.

NATIONAL ASSOCIATION FOR THE PREVENTION INFANT MORTALITY.—A course of lectures, for marr people only, on the Hygiene of Married Life and Pare hood will be given at Carnegie House, 117, Piccadi London, W., on Wednesdays from Nov. 2nd to Dec. 7 from 8.30 to 9.30 P.M. The lecturers will be Prof. Winif Cullis (Nov. 2nd), Lady Barrett (Nov. 9th), Dr. J. S. F bairn (Nov. 16th), Dr. Eric Pritchard (Nov. 23rd), Dr. C. Kimmins (Nov. 30th), and Prof. Louise McIlroy (Dec. 7t

FELLOWSHIP OF MEDICINE AND POST-GRADUA MEDICAL ASSOCIATION.—On Monday, Oct. 31st, at 5 P. at 11, Chandos-street, Cavendish-square, London, Lawrence Abel will deliver a lecture entitled, Points in Diagnosis and Treatment of Pyuria. On the same Dr. Donald Paterson will give a medical demonstrat at the Hospital for Sick Children, Great Ormond-str at 2.30 P.M., and Mr. Bright Banister a surgical dem stration at the Chelsea Hospital for Women at 2 P.M. lecture and demonstrations are open to members of medical profession without fee. Two courses begin Oct. 31st—viz., a four weeks' course at the London L Hospital, and a fortnight's course at the Hampstead Gen Hospital for general practitioners. From Nov. 7th to 1 the Hospital for Diseases of the Chest, Brompton, provide a comprehensive course. From Nov. 14th to 2 there will be a clinical course at St. Peter's Hospital, toget with a series of formal lectures on diseases of the urin tract. From Nov. 14th to Dec. 3rd a course in medic surgery, and gynæcology will be held at the Royal Wate Hospital, occupying the mornings and some afterno For those having only a short time at their disposal following two courses have been arranged: from Nov. 2 to Dec. 17th, at 5 P.M. daily, a series of clinical demons tions upon selected cases will be given in the out-pati department (in Welbeck-street) of the West End Hosp for Nervous Diseases, and from Nov. 21st, daily from to 6 P.M., for two weeks, there will be a course at the Lon Temperance Hospital for practitioners. A course will given at St. Mark's Hospital from Nov. 28th to Dec. Copies of syllabuses are obtainable from the Secretary the Fellowship at 1, Wimpole-street, London, W. 1, will be sent regularly to those who wish to receive the

IT is stated that the Mutual Property Insurance ompany's film, "The Risk of Diphtheria Banished," has ow been shown to more than 119,000 people.

THE cost of rebuilding the west wing of Middlesex ospital will be £241,511, and it is expected that the work ill occupy two years.

NATIONAL MEMORIAL TO QUEEN ALEXANDRA.—early £8000 has been produced by the opening of gardens England and Wales for the benefit of this memorial.

HELLINGLEY MENTAL HOSPITAL.—The Bishop of ewes has unveiled in the Chapel of St. Luke at Hellingley ental Hospital a stained-glass window provided by subriptions from the patients and staff and sundry friends. he designer was Mr. Percy C. Bacon.

DONATIONS AND BEQUESTS.—Mrs. Florence Baines, del, Leeds, left £1000 to Leeds General Infirmary and £500 the Leeds United Institute for the Blind, Deaf and umb, and £100 each to the Meanwood Convalescent Home r Children, and the Leeds District Nurses' Association.

ORDER OF ST. JOHN.—As a result of the new arter which the King granted last year a new system of nking was introduced, and some 120 honorary associates ve been transferred to the grade of officers, taking rank mediately after commander. The names of these ladies d gentlemen appeared in the *London Gazette* of Oct. 21st.

UNIVERSITY OF CAMBRIDGE.—Mr. Ernest Clarke, V.O., F.R.C.S., consulting surgeon to the Central London phthalmic Hospital, and President of the Section of phthalmology of the Royal Society of Medicine, has been ected an honorary Fellow of Downing College.

UNIVERSITY OF BIRMINGHAM.—A series of four ctures for dental practitioners will be delivered at the ental Hospital, Great Charles-street, Birmingham, at P.M. on Thursdays, Nov. 17th and 24th, and Dec. 1st and h. Particulars may be had from the clerk to the Dental oard at the University.

MEDICAL AND VETERINARY CONGRESS IN MOROCCO. congress to be known as Journées Médicales et Vétérinres Marocaines will be held next Easter (April 3rd to 8th) Casablanca and Rabat. Among those who will take part e Prof. Leriche, Prof. Calmette, Dr. Ramon, Prof. Lardenis, Prof. Cruchet, and Prof. Vallée. Particulars may be d from Dr. Lepinay, rue de Marseille, Casablanca.

LONDON SCHOOL OF HYGIENE AND TROPICAL EDICINE.—The following appointments have been made: . Reginald Lovell, M.R.C.V.S., D.V.S.M. Manch., research sistant in comparative pathology; Mrs. M. M. Smith, A., demonstrator in bacteriology; and Miss H. M. Woods, S.S., assistant lecturer in the division of epidemiology and al statistics. Mr. W. Rees Wright, M.Sc., has been pointed to a temporary research post, for the purpose of ntinuing Dr. P. A. Buxton's investigations on the biology stegomyia.

BRITISH ORTHOPÆDIC ASSOCIATION.—On its visit Bath on Oct. 22nd, this Association was entertained to heon in the Guildhall by the mayor, Alderman Cedric ivers, who was himself unable to be present owing to ness. The mayoress, Madame Sarah Grand, said that she shed that all people unconnected with hospitals could see e Orthopædic Hospital at Bath, for to her the cures ected there were among the most marvellous results surgery. After lunch the members of the Association ited this hospital and returned to the Old Baths for the ening ceremony, which was performed by Councillor cker. He said that that day they were celebrating the 0th anniversary of the reconstruction by Sir John Wood nr.), of the King's Bath, which actually dated back to e times of the Saxons. The Hot Bath might certainly be old. In the days of the Normans, Robert of Lewes, the hop of the town (city) built a small lepers' bath adjoining e Hot Bath for the relief of sufferers from the various skin eases which were then rife. That bath was used with rious alterations until 1777, when John Wood, the younger, epared designs for the Corporation for a new hot bath. his report, written 150 years ago, he had said that they uld not but flatter themselves that the Corporation Bath, who had already so eminently distinguished themves in providing that small bath for the use of the public, uld turn their attention to the larger ones, and would think their duty to render the use of the salutary waters as pensive as possible, in gratitude for the blessings of the springs. They had every reason to be proud of the ord of the Baths' Committee within the last few years, the town was meeting foreign competition by becoming re and more attractive, and by increasing in efficiency a place of healing.

WOOLWICH AND DISTRICT WAR MEMORIAL HOSPITAL.—This hospital at Shooter's Hill will be opened by the Duke of York on Wednesday, Nov. 2nd, at 2.45 P.M.

Dr. Abraham Flexner, of the Rockefeller General Education Board, has accepted the invitation of the Vice-Chancellor of the University of Oxford and the Rhodes Trustees to be the Rhodes memorial lecturer for the year 1928.

UNIVERSITY OF LONDON ANIMAL WELFARE SOCIETY. Prof. F. T. G. Hobday will take the chair at a public debate on Humane Slaughtering, to be held at Birkbeck College, Bream's Buildings, E.C. 4, at 8 P.M. on Friday, Nov. 4th. The address of the Society's hon. secretary is 14, The Hawthorns, Finchley, N. 3.

SCARCITY OF DENTISTS.—Mr. W. Malcolm Knott, chairman of the Surgical Committee, presided recently at the distribution of prizes to successful students of Birmingham Dental Hospital and School. He said that the number of students in the school might well be doubled. To make good the losses on the Dental Register, by death and retirement from practice, an annual addition of 625 dental surgeons was needed, whereas the present addition was only 450; this year, indeed, there would be only 380 accessions. In five years' time the scarcity would amount to over 1000 men.

LONDON CLINIC FOR ARTIFICIAL SUNLIGHT TREATMENT.—Under the auspices of the British Humane Association, which was inaugurated in 1923 by Mr. Campbell Johnson, with the object of promoting better health education among the poor in all parts of the world, the London Clinic was opened in Ranelagh-road, Pimlico, London, by Princess Louise, Duchess of Argyll, on Oct. 26th. The new establishment is the outcome of a small clinic held in one room at Tufton-street, the work of which so grew that larger premises became necessary. In addition to sunlight treatment there are rooms for diathermy, massage, and electrical treatment generally, though no provision at present has been made for an X ray instalment. Dr. Edward James Deck is the medical superintendent, and it is intended that the institution should run on lines similar to those of a general hospital, patients being seen by an almoner, in order to prevent abuse of charity.

CHELSEA CLINICAL SOCIETY.—At the annual dinner held on Oct. 25th at the Café Royal, the President, Dr. L. D. Bailey, responding to the health of the Society, proposed by Alderman Jefferson Hogg, said that there were now 150 members, more than half of whom lived outside Chelsea. The Society was in its twenty-ninth year; it was one of the best fraternities in London, and every one of its members was keen. Dr. F. J. McCann, proposing the health of the Kindred Societies, referred to the dinner meetings of the Chelsea Clinical Society and contrasted them with earlier occasions, when it was difficult to induce the weary, worn, and sometimes dinnerless doctor to attend. This was an age of short speeches and short stories, and the main defect of English medical men, as seen at congresses abroad, was their failure to show pictures or objects that would catch their hearers' interest. Mr. Mortimer Woolf, replying as President of the Hunterian Society, said that in preparing a speech the rule was to have ready the first and last sentences, and he wondered whether they ought not to be consecutive. He spoke of John Hunter's relations with St. George's Hospital. Mr. Ivor Back, proposing the health of the Guests, was reminded of George III., who was shown a list of the generals who had been selected to fight Napoleon. "I do not know what effect they would have on Napoleon," said he, "but by God they frighten me." He described a recent interview with an American patient to whom he recommended operation. "Yes, Sir," said the patient, "but there's only one surgeon can operate on me and that is the surgeon who can run faster than I can." Sir William Orpen referred to the number of the guests present and was reminded of a man who ordered 12 poached eggs in the hope that one might be good. Dr. Leonard Huxley, after an amusing analysis of his relations with doctors, spoke of the respect in which they were held by Robert Louis Stevenson and Dr. Johnson. Mr. J. Hugh Edwards, M.P., said that for some reason the public had more faith in doctors than politicians, though he could not understand why. If a Member of Parliament had claimed to have swum the Channel no one would have believed him. He was glad that leading members of the medical profession had ceased to fling chunks of wholemeal bread at one another in the press and had surrendered their pitch to the Bishops. Mr. Alan Hogg spoke of the value of medical work in Africa. Dr. Ernest Young proposed the Health of the President, which was drunk with musical honours, and Dr. Bailey, in turn, proposed the Health of the Officers, to which Dr. Eckenstein responded.

LONDON HOSPITAL DINNER.—The annual dinner of old students was held at the Trocadero Restaurant on Oct. 20th, Dr. Angus Kennedy in the chair. Proposing the health of the hospital, Dr. Kennedy referred to the loyalty which it evoked and the training which it gave; the most enduring friendships of his life had been formed there. When he was a resident 35 years ago conditions had been very different from what they were now; in those days the steak had been so toxic as not to be eatable and no one faced dinner in hospital if he had earned a fee which would pay for it somewhere else. Dr. Russell Andrews complimented Dr. Kennedy on his recent success in catching burglars much younger than himself, and told a number of his receiving-room stories to an audience which always asked for more. After the Chairman's health had been drunk with musical honours, the diners left their tables and the rest of the evening was spent according to temperament. In view of Lord Dawson's recent comments in the House of Lords on the growing sobriety of the younger generation it was interesting to note that the residents were distinctly quieter than last year.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY, Burlington House, Piccadilly, W.
THURSDAY, Nov. 3rd.—4.30 P.M., Prof. Hans Spemann: Organisers in Animal Development (Croonian Lecture).

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.
TUESDAY, Nov. 1st.—5.30 P.M., ORTHOPÆDICS. (Cases at 4.30 P.M.) Cases: Mr. Alan Todd: Dupuytren's Contracture in a Girl of 15. Mr. Rowley Bristow: Anatomical Variation of the Semilunar Cartilage. Mr. St. J. D. Buxton: Two Cases of Fibrocystic Disease of the Humerus. Other cases will be shown. 8.30 P.M., PATHOLOGY. Laboratory Meeting at the Middlesex Hospital, W. The Library will be open until 10 P.M.
WEDNESDAY.—5 P.M., HISTORY OF MEDICINE. Papers: Mrs. Singer and Mr. R. Steele: The Emerald Tablet of Hermes. Mr. W. Dawson: Mummies as a Drug. Members are invited to bring objects, books, prints, documents, instruments, medals, &c., of historical interest, for exhibition at the meetings of this Section. 8.30 P.M., SURGERY (at the Royal College of Surgeons, Lincoln's Inn-fields). Paper: Sir Arthur Keith: Concerning the Origin and Nature of Osteoblasts.
THURSDAY.—8.15 P.M., TROPICAL DISEASES. Paper: Dr. Aldo Castellani: Blastomycosis Cutis. Other short papers will be read.
FRIDAY.—5 P.M., LARYNGOLOGY. (Cases at 4 P.M.) Cases and specimens will be shown by Sir StClair Thomson, Mr. Bell Tawse, Mr. Vlasto, Mr. Herbert Tilley, Mr. Harold Kisch, Mr. T. B. Layton, Sir James Dundas-Grant, and others. 8.30 P.M., ANÆSTHETICS. Presidential Address: Dr. Cecil Hughes: The Present Position of Spinal Anæsthesia. The Library will be open until 10 P.M.
SATURDAY.—10.30 A.M., OTOLOGY. (Cases at 9.30 A.M.) Presidential Address: Dr. J. S. Fraser: A National Investigation of Otosclerosis. Cases and specimens will be shown by Mr. R. J. Cann (introduced by Mr. T. B. Layton), Mr. Norman Barnett, and others.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.
MONDAY, Oct. 31st, to SATURDAY, Nov. 5th.—FELLOWSHIP OF MEDICINE. Special lecture at the Medical Society, 11, Chandos-street, Cavendish-square, W., Mon., 5 P.M., Mr. Lawrence Abel: Points in the Diagnosis and Treatment of Pyuria.—CHELSEA HOSPITAL FOR WOMEN, Arthur-street, S.W. Special surgical demonstration by Mr. Bright Banister at 2 P.M. on Mon.—HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C. Special medical demonstration by Dr. Donald Paterson at 2.30 P.M. on Mon. (The above are open to the medical profession without fee.)—LONDON LOCK HOSPITAL, Dean-street, W. Comprehensive course for one month; clinical instruction and formal series of lectures.—HAMPSTEAD GENERAL HOSPITAL, Haverstock-hill, N.W. Special course for general practitioners, 4.30 to 6 P.M. —NATIONAL HOSPITAL, Queen-square, W.C. Special post-graduate course in Neurology. Further information from the Secretary, Mayfair 2236.

WEST LONDON HOSPITAL, POST-GRADUATE COLLEGE, Hammersmith, W.
MONDAY, Oct. 31st.—11 A.M., Mr. Tyrrell Gray: Surgical Wards. 2 P.M., Mr. Armour: Operations. 4.30 P.M., Mr. Addison: Tumours of the Breast (lecture).
TUESDAY, Nov. 1st.—10 A.M., Medical Registrar: Ward Demonstration. 2 P.M., Mr. Sinclair: Surgical Out-patients. 4.30 P.M., Dr. Owen: Infant Feeding (lecture).
WEDNESDAY.—10 A.M., Dr. Owen: Medical Diseases of Children. 10 A.M., Dr. Burnford: Medical Wards. 2 P.M., Dr. Scott Pinchin: Medical Out-patients.
THURSDAY.—10 A.M., Dr. Grainger Stewart: Neurological Department. 2 P.M., Dr. Ironside: Medical Out-patients. 3 P.M., Sir H. Simson: Gynæcological Ward.
FRIDAY.—10 A.M., Dr. Dowling: Skin Department. 2 P.M. Mr. Tyrrell Gray: Operations. 4.30 P.M., Mr. Sinclair: Gall-stones (lecture).
SATURDAY.—9.30 A.M., Dr. Burnford: Bacterial Therapy and Ward List. 10 A.M., Dr. Owen: Medical Diseases of Children.
Operations, Medical, Surgical, and Special Out-patient daily 10 A.M. to 5 P.M.; Saturdays, 10 A.M. to 1 P.M.

ROYAL NORTHERN HOSPITAL, Holloway, N.: POST GRADUATE COURSE.
TUESDAY, Nov. 1st.—3.15 P.M., Mr. L. E. Barrington: Ward: Chronic Indigestion Considered Surgically.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.
THURSDAY, Nov. 3rd.—4 P.M., Dr. Thursfield: The Grave Forms of Anæmia.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION
WEDNESDAY, Nov. 2nd.—3.30 P.M. (at the Wellcome Bureau of Scientific Research, Endsleigh-gardens, W.C.), Dr. S. H. Daukes: Lecture-Demonstration on Blood Diseases.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 49, Leicester-square, W.C.
TUESDAY, Nov. 1st.—5 P.M., Dr. Knowsley Sibley: Principles of Treatment. Local.
THURSDAY.—5 P.M., Dr. A. M. H. Gray: Streptococcic Infections.

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.C.
WEDNESDAY, Nov. 2nd.—4 P.M., Sir H. Gauvain: Tuberculosis as a Problem of Childhood.

JAMES MACKENZIE INSTITUTE FOR CLINICAL RESEARCH, St. Andrews.
TUESDAY, Nov. 1st.—4 P.M., Prof. D. P. D. Wilkie: Gall-Bladder Disease and Gall-Stones. Discussion to be opened by Dr. James Orr.

PEOPLE'S LEAGUE OF HEALTH.
THURSDAY, Nov. 3rd.—6 P.M. (at 11, Chandos-street, Cavendish-square, W.), Dr. J. Sim Wallace: Teeth.

ANCOATS HOSPITAL (Mill-street, Manchester) POST GRADUATE LECTURES.
THURSDAY, Nov. 3rd.—4.15 P.M. (tea at 3.45 P.M.), Dr. Kletz: Diarrhœa.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE COURSE.
FRIDAY, Nov. 4th.—4.15 P.M., Dr. A. D. Macdonald: Shock.

UNIVERSITY OF SHEFFIELD POST-GRADUATE CLINIC
FRIDAY, Nov. 4th.—3.30 P.M., Dr. Naish: Clinical Cases.

ST. MARY'S HOSPITAL, Whitworth-street, Manchester.
TUESDAY, Nov. 1st.—4.15 P.M. (tea 3.45 P.M.), Dr. H. Cameron: Lloyd Roberts Memorial Lecture: The Child in General Practice. A Study Both in Temperament and Disease.

Appointments.

COOKE, R. HUNT, M.D., M.R.C.P. Lond., has been appointed Honorary Anæsthetist, Hospital for Epilepsy and Paralysis, Maida Vale.

LUMB, N. P. L., M.B. Lond., F.R.C.S. Eng., one of the Medical Referees under the Workmen's Compensation Act, for the Districts of the Bishop's Waltham; Petersfield; Portsmouth; and Newport and Ryde County Courts.

MAINGOT, RODNEY, F.R.C.S. Eng., Visiting Consulting Surgeon, Victoria Hospital, Swindon.

STOESSIGER, HILDA N., M.D., M.R.C.P., Honorary Medical Registrar, Victoria Hospital for Children, Tite-street, Chelsea.

Certifying Surgeons under the Factory and Workshop Act: JAMES, G., L.R.C.P. Lond., M.R.C.S. (Llanelly District of the County of Carmarthen); YOUNG, J. M., M.B., Ch.B. Edin. (Cardenden District of the County of Fife).

Manchester Royal Infirmary: SMILEY, A. G., M.B., Ch.B. Manch., Junior Assistant Resident House Surgeon (central branch); JONES, G. W., M.B., Ch.B. Manch., Resident House Surgeon to the Special Departments; REGAN, N., M.B., Ch.B. Manch., and ARNING, D., M.B., Ch.B. Manch., Clinical Assistants, Medical Out-patient Department; EDWARDS, M. E., M.B., Ch.B. Manch., and BRADLEY, D. M., M.B., Ch.B. Manch., Clinical Assistants, Surgical Out-patient Department; ELL, R., M.B., Ch.B. Man., Cardiological Registrar; ASHWORTH, H. K., M.B., Ch.B. Manch., Junior Anæsthetist.

Westminster Hospital: BALL, W. A., L.R.C.P. Lond., M.R.C.S.; COWLE, G. H., L.R.C.P. Lond., M.R.C.S., House Physician; OLSSON, G. K., L.R.C.P. Lond., M.R.C.S., House Surgeon; SCOTT-EASTON, W. H., L.R.C.P. Lond., M.R.C.S., Resident Obstetric Assistant; CUTTING, P. E. J., L.R.C.P. Lond., M.R.C.S., Resident Medical Officer.

Vacancies.

For further information refer to the advertisement columns.

Birmingham, Witton Babies Hospital.—Res. M.O. £150.

Bolingbroke Hospital, Wandsworth Common, S.W.—H.P. rate of £120.

ournemouth County Borough.—M.O.H. and Sch. M.O. £1000.
urton-on-Trent, Bretby Hall Orthopædic Hospital.—Res. M.O. £450.
uxton, Devonshire Hospital.—Bacteriologist. £400.
iro, Egypt, Girl's Schools under the Ministry of Education.—Asst. Med. Inspector. L.E.480.
nterbury, Borough Mental Hospital.—Asst. M.O. £350.
rdiff, Glan Ely Tuberculosis Hospital, Fairwater.—Jun. Asst. M.O. At rate of £200.
rdiff University College of South Wales and Monmouthshire.—Professor of Pathology and Bacteriology. £1500.
ntral London Ophthalmic Hospital, Judd-street, W.C.—Asst. Surg.
ntral London Throat, Nose, and Ear Hospital.—Second Res. H.S. At rate of £75.
eshire County Council.—Dist. Tub. O. £750.
ester Royal Infirmary.—Third H.S. £150.
oydon County Borough.—M.O.H. £1300.
mfries, Crichton Royal Mental Hospital.—Clin. Pathologist. £400.
ling Borough.—Asst. M.O.H. £600.
stern Dispensary, Leman-street, E.—Phys.
ham Union.—M.O., &c. About £280 with fees.
elina Hospital for Children, Southwark, S.E.—Phys.
mpstead General and North-West London Hospital, Haverstock-hill, N.W.—H.S. At rate of £100.
spital of St. John and St. Elizabeth, 40, Grove End-road, N.W. Asst. S.
eds, Tuberculosis Sanatorium, Killingbeck.—Asst. Res. M.O. £250.
wisham, Metropolitan Borough of.—M.O.H. £1100.
ndon Hospital, E.—First Asst. and Reg. to one of the five Med. Firms. First Asst. and Reg. to one of the five Surg. Firms. Salary in each case £300.
ngton Hospital, Longton, Staffs.—H.S. £120.
laya Medical Service.—Medical Inspectors of Schools. £700.
nchester, Victoria Memorial Jewish Hospital, Cheetham.—Jun. H.S. At rate of £125.
wark Hospital and Dispensary.—Res. H.S. At rate of £150.
rwich, Norfolk and Norwich Hospital.—H.S. £120.
rmouth, South Devon and East Cornwall Hospital.—Cas. H.S. At rate of £50.
yal Northern Hospital, Holloway, N.—Asst. Radiologist. £140.
Bartholomew's Medical College.—Demonstratorship of Physiology.
ffield Royal Infirmary.—Hon. Asst. Surg. in Ear, Nose and Throat Dept.
nsea Hospital.—H.S. to Ophth. and Aural Depts. £150–£200
iversity College Hospital, Gower-street, W.C.—Asst. Radiologist. £200.
st Middlesex Hospital, Isleworth.—Asst. to Med. Supt. £250.
rlesden, General Hospital, Harlesden-road, N.W.—P. in charge of Dept. for Dis. of Skin.

Chief Inspector of Factories, Home Office, London, S.W., announces a vacant appointment for a Certifying Factory Surgeon at Deal (Kent).

Births, Marriages, and Deaths.

BIRTHS.

ES.—On Oct. 15th, at Thorne House, St. Albans, the wife of Dr. Kenneth Bates, of a daughter.
DLEY.—On Oct. 20th, the wife of Dr. W. H. Bradley, Stratton-on-the-Fosse, of a son.
RELL.—On Oct. 19th, at Melville-street, Ryde, I.W., the wife of A. Ambrose Burrell, M.B., of a daughter.
NES.—On Oct. 19th, the wife of Geoffrey Keynes, F.R.C.S., of Boundary-road, N.W., and Park-square West, N.W., of a son.
MSON.—On Oct. 16th, at Musgrave Hall, the wife of Dr. Hugh Thomson, of a son.

MARRIAGES.

MACK—LIDDLE.—On Oct. 18th, at St. Columba's, Pont-street, London, John Godfrey Cormack, M.B., son of Mr. John Cormack, Publisher, Edinburgh, to Eleanor Margaret, only daughter of Mr. A. Liddle, Penrith.
TON—EADS.—On Oct. 15th, at Holy Trinity, Hazlemere, Bucks, James Ernest Horton, L.D.S.R.C.S. Eng., to Dorothy Margaret, elder daughter of Mr. W. J. R. Eads, of Luton.

DEATHS.

MS.—On Oct. 16th, aged 40 years, David Rutherford Adams, M.D. Glasg., of Linden Lodge, Torquay.
RN.—On Oct. 18th, Andrew Russell Bearn, M.D., F.R.C.S., in his 41st year.
SON.—On Oct. 23rd, at Clifden House, Twickenham, John Rudd Leeson, M.D., J.P., F.L.S., F.R.A.S., Mayor of Twickenham, in his 74th year.
T.—At a nursing home, Glasgow, on Oct. 19th, 1927, William McNiven Muat, C.B.E., M.B., C.M., of 14, Hamilton Park-terrace, Glasgow, late Senior Medical Officer, Weihai-wei, North China, beloved husband of Elsie Hurst. No flowers by request.
ET.—On Oct. 17th, after an operation, Peter Paget, Colonel A.M.S., T.A., T.D., of Gloucester-terrace, W., aged 62.

—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths

Notes, Comments, and Abstracts.

CRICKET AND ITS RELATION TO THE DURATION OF LIFE.

BY A. BRADFORD HILL, PH.D.

(*From the National Institute for Medical Research, London.*)

THERE is a common belief that first-class athletes, in spite of their physique, are not "good lives"; that they tend to exhaust themselves by the physical efforts they make and to die relatively young either from a "weakened heart" or from phthisis. Yet, on the other hand, such a class must form an extremely "select" population, selected for physical stamina and powers of endurance. For this reason the obvious expectation would be that they were "lives" *above* the average. The explanation of the apparent paradox probably lies in the emphasis that is placed by the mind upon the tragedy of early death. The perspective is wrong. The exceptions are observed and remembered; they are not related to the general rule. Or, again, the strain which first-class athletes undergo is observed, but it is considered in relation to *average* physique and not in relation, as it should be, to the exceptional physique these persons possess.

Occasionally data exist which will allow a scientific analysis to be made in support or denial of general belief. For instance, in the case of first-class cricketers "Wisden's Cricketers' Almanac" devotes one section to biographical details. Information—i.e., year of birth and year of death—can be extracted which will enable us to see whether this class of athletes actually is short-lived or not.

For the purposes of this study the 1926 issue was used and account was taken of all cricketers (of British nationality) who were born not later than 1888 and had played for any English county or for either Oxford or Cambridge University. The end of the experience was taken as 1913 so as to exclude the war years, and all those who were still alive at the end of that year were then treated as "exits," by the ordinary life-table method. The number born before the nineteenth century was too small to be of service, and excluding these there remained 3424 first-class cricketers born between 1800 and 1888. These were divided into two sections: (1) those born between 1800 and 1849, and (2) those born between 1850 and 1888. A life-table was drawn up for each group. The former can be compared with English Life-Table No. 4, which is based upon the mortality of 1871–80, or, in other words, since the rates of mortality were calculated from age 25 to age 80, upon births between 1791 and 1855. The latter group of cricketers—i.e., births between 1850 and 1888—coincides closely with English Life-Table No. 8, which is based upon the mortality of 1910–12, or, since the rates of mortality were calculated from age 25 to age 60, upon births between 1850 and 1887. These comparisons are set out in Table I.

TABLE I.—*Comparison of Cricketers with General Male Population.*

—	Cricketers born between 1800 and 1849.		English Life Table No. 4. Males. Births between 1791 and 1855.	Cricketers born between 1850 and 1888.		English Life Table No. 8. Males. Births between 1850 and 1887.
Age.	Exposed to risk at each age.	Number who die within 10 years out of 1000 commencing at each age.		Exposed to risk at each age.	Number who die within 10 years out of 1000 commencing at each age.	
25	1287	45*	89	2137	35	47
30	1265	70	106	1867	46	60
35	1229	92	128	1565	61	78
40	1176	97	153	1252	83	102
45	1116	107	187	978	117	138
50	1062	146	235	684	122	190
55	997	186	300	417	—	—
60	908	237	392	180	—	—
65	743	343	512	—	—	—
70	470	451	652	—	—	—

* The table reads: Out of 1000 beginning at age 25 of cricketers born between 1800 and 1849, 45 die before reaching age 35, while 89 males E. L. T. No. 4, 35 cricketers born between 1850 and 1888, and 47 males E. L. T. No. 8 die within that 10 years. Similarly, out of 1000 beginning at age 30 the deaths between ages 30 and 40 number 70, 106, 46, and 60; and of 1000 beginning at age 35, 92, 128, 61, and 78 die before reaching age 45.

The comparisons show that cricketers form by no means a short-lived population, but on the contrary hold a substantial advantage at every age in both groups. This advantage is undoubtedly somewhat exaggerated for two reasons: (1) it is assumed that all cricketers are "exposed" from age 25, while in actual fact probably some do not "enter exposure" in first-class cricket till a later age; (2) a certain number of deaths very probably escape notice and are not recorded in the almanac. This would affect mainly the later age-groups, when after retirement from "active life" the cricketer may "drop into the grave, unpitied and unknown." Neither source of fallacy is, however, at all likely to be on a sufficient scale to alter the conclusion that cricketers are long-lived.

Gentlemen v. *Players.*

In Table II. comparison is made between "players" and "gentlemen," and it will be observed, except at age 25 when the difference is slightly in favour of the professionals, that the amateurs hold the advantage in longevity throughout.

TABLE II.—*Comparison of Amateurs and Professionals.*

Age.	Amateurs born between 1800 and 1874.		Professionals born between 1800 and 1874.	
	Exposed to risk at each age.	Number who die within 10 years out of 1000 commencing at each age.	Exposed to risk at each age.	Number who die within 10 years out of 1000 commencing at each age.
25	1705	40	993	36
30	1676	52	980	65
35	1637	63	957	99
40	1539	74	890	118
45	1328	99	766	130
50	1122	139	625	146

The suggestion is that the amateur not only shares with the professional the advantage of physical selection, but that he has in addition the benefit, as regards length of life, of social selection. His life, in general, runs in an easier groove. Glancing through the records given in "Wisden's Almanac" it is not difficult to see why, in this case, a superficial inspection should give rise to a belief in an unduly heavy mortality at the younger ages. The biographies relate to persons born during, roughly, the nineteenth century and (as shown in Table I.) nearly two-thirds of these births fall after 1850. Obviously, therefore, the deaths recorded must relate largely to the younger age-groups, since the greater number of the exposed to risk are still alive in 1913, the closing year of this study. In other words, relatively early in life they become "exits" and have not before 1913 had the chance of being recorded as deaths in the more advanced age-groups. Table I. shows clearly the process. Out of 2137 cricketers born between 1850 and 1888 and exposed at age 25, under half remain 20 years later and by age 60 all but 180 have gone. Their ranks are depleted by "exits" in the relatively early age-groups. The eye grasps the continual registration of deaths at the younger ages but fails to assess the effect of the "exits" in limiting the exposure in the more advanced years of life.

Summary.

1. There is a common belief that first-class athletes tend to die relatively young.

2. An examination of the available data shows that such a belief is not true for first-class cricketers, who are long-lived in comparison with the general population.

HOMICIDAL IMPULSE IN VERSE.

IN "Nan of Aviemore: A Highland Tragedy" (London: Erskine Macdonald, Ltd., 1927, pp. 67), Dr. A. Niven Robertson tells how Ian Grant left his beloved, Nan of Ruachar, to go to sea. His ship was wrecked, and he was struck on the head by a madman, his companion on a raft. Deprived of his reason, he wanders back to Ruachar in search of Nan, who has remained faithful to him although courted by a young doctor. Ian comes on the pair and shoots his supposed rival dead, but the shot also kills his sweetheart, and he dies in despair. The story is told in lively quatrains and the tragic lovers move to their fate against an ever-changing background of Highland scenery and life. The theme is the complete alteration of a man's character by an accidental blow, a natural catastrophe which, though inevitable, yet wrecks three lives, and every psychiatrist will be able to recall "surgical tragedies" of the same kind. The poem is full of the atmosphere, terrifying in its majestic loneliness and appealing in its primitive beauty, of the hills and scattered villages where its countrymen pursue their grim, unceasing struggle with Nature.

FRAUDS ON NURSING HOMES.

SENTENCE of nine months imprisonment passed at tl Marylebone police-court recently will protect the matro of nursing homes from a nuisance to which they have late been exposed. The accused, a man of 37, was stated have been liberated from prison on Sept. 14th and to ha gone to a nursing home under the influence of drink. H said he was a man of means and wanted the best atte tion for a fortnight in order to get the drink out of h system. He left next morning for the alleged purpose obtaining money at his bank and never returned. He appea to have incurred a debt of £23 to a cabman who drove hi about London. He was eventually driven to a nursing hor in Bayswater, where he made similar representatio Fortunately the matron happened to become aware of wh had occurred at the previous nursing home, and she co municated with the police, who arrested the accused in be The actual charge was that of obtaining credit to the exte of eight guineas at the two nursing homes by fraud.

The accused, in a long address to the magistrate, stat that he possessed a Jekyll-Hyde personality. When he w in a normal condition, he said, he loathed and despis himself for the disreputable things he did when under t influence of alcohol and drugs. The magistrate brie observed that it was a clever fraud and a mean trick, a passed sentence as already mentioned. The allegation of d personality was not further discussed, but was probab accepted as the familiar attitude of Philip sober towa Philip drunk. A detective-sergeant said that the accused h six previous convictions for fraud in the last three years

A GOOD INHALANT.

WE have received from the Pineoleum Co. (New Yo City) a simple and efficient type of nebuliser, intended use in the catarrhal conditions of nose and throat wh arise so frequently at this time of year. The composition the Pineoleum brand inhalant supplied with the nebuli is stated in the literature accompanying the apparat where it is claimed that careful and stringent standardisati both chemical and bacteriological, has ensured an absolut uniform product. The standardisation has been checked the Clinical Research Association, whose certificates sho definite inhibitory action of the inhalant on certain organis associated with respiratory catarrh. The present type nebuliser has been improved by making all the metal pa which are liable to contamination readily sterilisable boiling. The nebuliser delivers a copious and very fine sp of even distribution. The British agents and distributors Messrs. Brooks and Warburton (American Drug Supply C Ltd., 40, Lexington-street, London, W. 1.

TOXIC RUBBER.

Mr. W. E. J. G. de Bran writes to inquire whether medi practitioners have had brought to their notice cases sudden inflammation of the eyes among children for wh no reason can be found. The smarting and suffusion subs rapidly, the copious crying of smaller children seeming be the best remedy for them. Personal experience of his c leads him to suggest that such children will be found to h recently engaged in games with a hard rubber ball wh surface, probably through the medium of their fingers, come in contact with the eyes. He incurred just suc temporary inflammation himself after screwing a miniat rubber tyre called a "Meccano" into his eye, as a mono for the amusement of a small boy. Possibly some of readers may have some familiarity with the condition.

The toxic qualities of some rubber have been noticed many observers. In a letter published in THE LAN over 20 years ago (v. LANCET, June 10th, 1905) Dr. F. Pond drew attention to the presence of sulphide of antim as a constituent of red rubber and suggested the poss connexion of this with cases of intestinal disorder wh had come under his notice. Analyses made by THE LAN and in other laboratories had already demonstrated fact 20 years previously that rubber bands, washers, tubing contained this poisonous salt, but apparently negligible quantity, having regard to the length of t over which disintegration of the rubber was usually spr

RIFLE SHOOTING AS A PASTIME.

THE Society of Miniature Rifle Clubs has issued a st ment drawing attention to the advantages of rifle shoo as a pastime for medical men. Dr. C. Heygate Ver the King's Prize winner at Bisley, has, it is pointed set an example which is being followed by other mem of the profession, not only for the pleasure gained but as a means of training the eye to greater skill and judgm Among doctors who have won distinction as marks are mentioned Dr. P. G. Harvey, Dr. F. H. Kelly, and W. J. Bethune. It is suggested that any of our rea who are interested should apply to the Secretary of S.M.R.C. at 15, Arundel-street, Strand, London, for fur information.

Bradshaw Lecture

ON THE

PATHOLOGY OF PNEUMONIA.

Delivered at the Royal College of Physicians of London on Nov. 3rd, 1927,

BY JOHN F. GASKELL, M.D., D.P.H. CAMB.,

FELLOW OF THE COLLEGE; BEIT RESEARCH FELLOW; HONORARY ASSISTANT PHYSICIAN, ADDENBROOKE'S HOSPITAL, CAMBRIDGE.

THE subject selected for my lecture has a stage which familiar to every member of the medical profession; the other hand, our knowledge of the complete hological processes of the disease is in many pects singularly inadequate. Although we are all miliar with that stage in the progress of a lobar umonia which occurs on the fifth to the seventh of the disease, just before the crisis, the oppor- ity seldom occurs to make a complete pathological mination of the earlier or later stages. The clinical dition, when such an opportunity does arise, has n so different from that of the same stage of an omplicated lobar pneumonia that the criticism ays can be made that the conditions found are comparable in the two cases. Further, we still k knowledge of the conditions which govern the ribution of pneumonic consolidation, why in one broncho-pneumonia is produced and in another ar pneumonia.

is therefore eminently desirable to endeavour to ain insight into the complete cycle of the pneumonic ess by experimental methods, not only with regard he phases of the struggle between the invading unism and the host, but also with regard to the litions necessary for that struggle to take place.

ertain results of experimental work [1] may perhaps pplied to the elucidation of the conditions found nan. In order to justify any such application necessary to show that the affinity between the ggle in the experimental host and in man is a e one. The results of the earlier experimenters from this point of view disappointing. It was vn soon after the discovery of the pneumococcus the introduction of this organism into the d stream or the peritoneal cavity gave rise to ges in the lungs, but these changes were so rent from those commonly met with in the human ect that few conclusions applicable to the latter d be rationally drawn from them.

troduction of the organism into the lung also unsatisfactory results, the lesions produced g of a broncho-pneumonic type scattered through- he lung, which threw little light upon the lobar of pneumococcal infection which is of particular est from the clinical point of view. The first advance in this matter was the production of pneumonia in dogs by Lamar and Meltzer.[2] nsufflation of the lung after intubation of the x they were able to produce lobar consolidation ly comparable in its pathological reaction to uman type.

eir experiments were confirmed and amplified he work of Blake and Cecil [3] on monkeys, who produced complete lobar consolidation by intra- eal injection. These experiments were all made pneumococci of very high virulence.

VIRULENCE.

any attempt to produce infective lesions by iment, estimation of the virulence of the infecting ism is of the utmost importance; this is ularly so in the case of the pneumococcus se its virulence varies so greatly.

e authors mentioned above used organisms which r the criterion that one-millionth of a c.cm. of 8-hour broth culture killed mice when injected peritoneally; their method of obtaining such a was by successive dilutions in broth. This criterion is open to objection that the few organisms injected lie in a comparatively large volume of a nutrient fluid which is not rapidly absorbed and in which they can freely multiply, the host acting as a living test-tube. The method, therefore, does not give an accurate measure of the minimal lethal dose to mice.

The virulence or pathogenic power of an organism depends upon two factors which cannot be measured separately—namely, the invading power of the organism and the resisting power of the host. In order to obtain any measure of virulence it is therefore necessary to standardise as far as possible one of these factors—namely, host resistance. The measure then used is the smallest dose of the organisms which will cause death. It is therefore essential to employ a method which ensures immediate reaction between the attacking organisms and the defences of the body. The organisms must be denied all facilities for multiplying other than those provided by the tissues of the host. Multiplication of the organism in the broth introduced will give a virulence value which is not only high, but which is also liable to considerable variation depending upon the rate of absorption of the fluid. The mouse is an experimental animal which is eminently suitable for the measurement of pneumococcal virulence, owing to its high susceptibility, and if healthy mice whose weight lies within narrow limits are used, a fairly satisfactory stabilisation of the host factor is obtained. The possibility of vitiation of the measurement of the dose of the organism by multiplication in the fluid introduced can be obviated by dilution in normal saline, which is rapidly absorbed. Such dilutions must, however, be injected immediately as the pneumococcus rapidly dies in saline solution.

TITRE.

My own experiments have been almost entirely carried out with a single strain of pneumococcus whose virulence has been altered at will. For convenience the measure of virulence or titre has been taken as the logarithm of the reciprocal of the minimal lethal dose—that is to say, the titre being x the minimal lethal dose is then $1/10^x$. The actual dose given can be roughly estimated from the fact that an 18-hours' broth culture contains between 200 and 500 million organisms, or otherwise 2×10^8 to 5×10^8. The minimal lethal dose at titre 7, therefore, lies between 20 and 50 cocci only and titre 8 becomes an absurdity.

The experimental animal selected was the rabbit, an animal moderately susceptible to the pneumococcus, which fortunately proved very comparable to the human host in its relationship to infection.

LUNG STRUCTURE.

Before describing the experimental lesions obtained I must first mention a point in the structure of the mammalian lung which is of considerable importance in the consideration of the probable origin of such lesions. The bronchial tree is lined with ciliated epithelium up to its terminal branches. These finally end in one or two terminal bronchioles having non-ciliated epithelium, each of which opens into an alveolar unit consisting of various portions which have been accurately described by Miller [4] and named by him on the analogy of a classical house, the vestibule, the atria, and air vesicles with terminal pouches or air cells. Owing to the absence of ciliation of these terminal bronchioles any material which reaches into or beyond them is not removed but is speedily sucked in by the respiratory movements and is bound to become spread through the whole system. Such a terminal bronchiole with its air spaces may be termed an alveolar unit, and any infection which reaches it necessarily involves the whole unit. These terminal units not only occur at the end of terminal branchings, but are also given off throughout the bronchial tree, rising from the largest bronchi, usually being in pairs, and connected to such a bronchus by only a very small short ciliated bronchiole. (Fig. 1). The central part of the lung is composed of such units which are thus

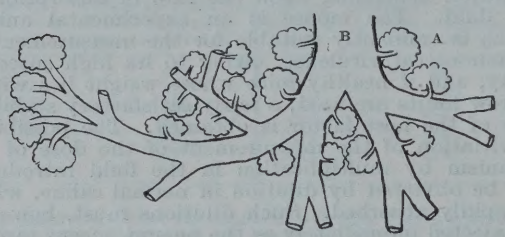
in very intimate connexion with the biggest bronchial tubes.

Owing to the respiratory to and fro current aided by the ciliary action of the epithelium, material lying in the large tubes is rapidly side-tracked into these central units. There is a great tendency for these small branchings consisting of a tiny bronchiole with two units attached to occur in whorls of three, a peculiarity of structure which explains the tri-lobed appearance of the consolidation not infrequently seen in broncho-pneumonic conditions.

EXPERIMENTAL METHOD.

The method employed in order to make certain of introducing pneumococci into the lung itself was to perform a tracheotomy and pass a soft rubber tube down the trachea as far as possible, the tube being of such size as to engage in the opening of the main bronchus to one lobe of the lung. The culture was then injected into the tube by piercing it with a fine injection needle. The material was then blown into

FIG. 1.



A diagram of the arrangement of the alveolar units round the larger bronchi. The alveolar units A arise directly from the largest bronchi B, and are thus in very intimate relationship with them.

the lung by means of a puff ball on the external end of the tube. It was found that by far the commonest site of any lesion produced was the lower lobe of the right lung, which is of interest because of the frequency with which this lobe is the site of pneumonia in man. The probable explanation in both cases lies in the fact that the bronchus of the right lower lobe is in the most direct line with the trachea.

By this method at least half of the culture injected is held to reach the lung itself, if, as became the rule, a volume of 1 c.cm. at least is injected. The loss, of course, occurs from material left behind in the tube and still adhering to its end when it is withdrawn. Infection of the tissues of the neck round the tracheal opening invariably occurred, but was of little moment, the wound healing rapidly in two to three days.

Over 80 experiments were performed with the Type I. pneumococcus, whose virulence varied from a titre of below 3 to one between 6 and 7. The nature of the lesion obtained was found to depend entirely upon the virulence of the organism used and not upon the dose given. This had already been indicated by the results obtained by Lamar and Meltzer.[2]

LESIONS PRODUCED.

Introduction of cultures into the lung with titre of below 4 produced only the most insignificant changes or none at all. With titre between 4 and 5 patchy lesions were produced which could be closely compared with human broncho-pneumonic lesions; with a titre of about 5 lesions of larger size were obtained, reaching from the centre of the lobe to the periphery, thus corresponding to a lobular distribution; with titres between 5 and 6 the whole lobe became involved and either a definite lobar pneumonia was obtained or the infection spread still further, involving all the thoracic serous cavities and giving rise to a double pleurisy and pericarditis. With a titre of 6 or over an entirely different type of lesion was produced with diffuse changes throughout all lobes of both lungs. This could be shown to be due to a rapid intense septicæmic invasion of the blo stream, and was comparable with the type of lesi obtained as the result of intravenous or intraperiton injection. It may therefore be called the septicær type of lesion or, on the analogy of tubercul infection, miliary pneumonia (see table).

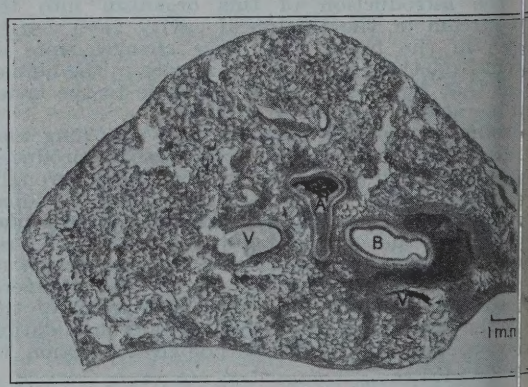
Titre.	M.L.D. mouse.	Lesion rabbit.	Distribution.	Reaction.	Mini effec do
3–4	$1/10^3$	Broncho-pneumonia.	(*a*) Central; (*b*) Diffuse.	Catarrhal.	0·1
4–5	$1/10^4$	Lobular.	Pleurisy, local.	Catarrhal and Polymorph.	0·(
5–6	$1/10^5$	Lobar.	Pleurisy and peri-carditis.	Polymorph.	0·(
6–7	$1/10^6$	Septicæmic.	Fulminating.	Serum and R.B.C.	0·(

I will now describe the histological char observed in each of these different types and the same time suggest a possible explanation of t variation with rise of virulence. I will for the mom neglect the method of disposal of organisms wh titre is below 4.

BRONCHO-PNEUMONIA.

When organisms of about titre 4 are introdu into the rabbit's lung, they and the material in wh they are introduced are speedily side-tracked by respiratory current and ciliary movement into nearest alveolar units. Frequently in my experim the material has only reached the larger bronchi has, therefore, been side-tracked into the cer units in connexion with them, thus giving rise patchy central pneumonia (Fig. 2); if the mat has spread more widely a diffuse broncho-pneum is produced (Fig. 3). The inflammatory reaction w takes place remains confined to the units thus inva which are often in the earlier stages clearly deline by the consolidated area. Very few polymor nuclear leucocytes come out into the area of inf mation, the exudate consists mainly of a serous in which large cells with round or oval nuclei ponderate, having all the characteristics of alv

FIG. 2.



Rabbit. Central broncho-pneumonia. A localised centra of consolidation surrounds the main bronchus (B) fo thirds of its circumference. A = artery, V = vein, B = bron This figure and those following are drawn from a photo of a cross section of the right lower lobe. The consol area shows up dark.

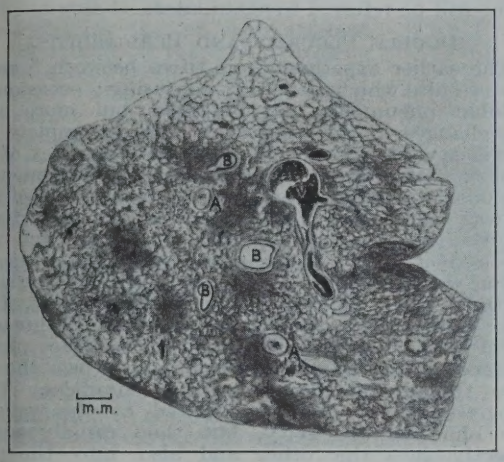
lining cells; the cells which are first cast off ra undergo fatty degeneration. It is only in the stages that cocci in any quantity can be identifi such a lesion. They appear to have little pow multiplication and to be rapidly destroyed b inflammatory reaction, though, as will be ment shortly, this destruction is not always complete.

Later the neighbouring alveoli begin to take in the inflammatory action so that the unit o becomes obscured. This peripheral reaction is a

erile and consists of a greater or less amount of rous exudate with an intense proliferation of the veolar lining cells, which often produce plaques of gh epithelium so that the alveoli appear completely led with large cells producing the catarrhal reaction hich has been claimed to be characteristic of true oncho-pneumonia.

The capillaries of the consolidated patch become ore and more engorged, reaching a maximum at out the fourth or fifth day. They then gradually come more inconspicuous and are often difficult to

FIG. 3.



bbit. Broncho-pneumonia. Scattered patches of consolidation re widespread, tending to group round central structures of obe. Arteries tightly contracted. Lettering in Figs. 3, 4, 5, 6 s in Fig. 2.

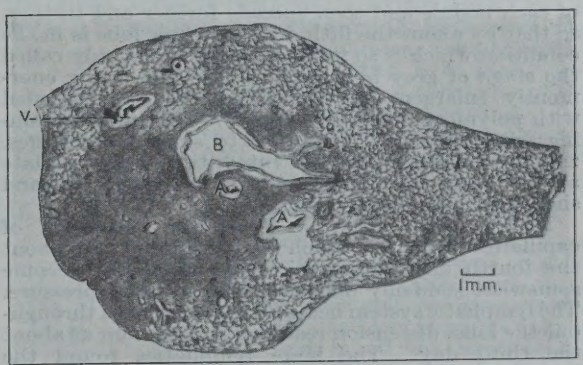
d on the seventh day. In the meantime the more id exudate becomes slowly absorbed by the local phatics; the cells thrown off earliest become integrated and the catarrhal increase spreads into patch owing to the activities of the alveolar cells l remaining in situ, which are endeavouring to lothe the damaged alveolar surface. These newly med cells are continually being cast off, and at out the seventh day the consolidated nodule almost irely consists of such cells and is almost entirely n-vascular. The process of absorption by the phatics is shown by a mild dilatation with a ly intense aggregation of lymphocytes which y form regular perivascular cuffs round the small eries in the patch.

One of the most striking characteristics of this low de type of reaction is the complete absence of nge in the bronchi and bronchioles, with the eption of the presence of exuded alveolar exudate the small bronchiole of the patch and sometimes the bronchus around its opening. With a lesion this grade the animal often shows little sign of comfort except for a transient rise of temperature the first two or three days, slight distaste for food, perhaps a little fall in weight. In a few experiments a second period of malaise has occurred on the h to seventh day. On killing the animal during s period, evidence of the occurrence of fresh lesions been found, in which cocci have been identified, ugh they are not longer to be found in the original ons. The reaction has been similar to that usually be found on the second or third day. These eriments throw light on that low grade form of ncho-pneumonia which occurs in children, charcsed by the successive appearance of fresh patches lung infection which may even continue for as g as six months, Armstrong.[5] The explanation t they suggest is that the local defensive reaction he original lesions has not been sufficiently intense pletely to destroy the invading cocci. The material ruded from the small bronchiole thus contains ng cocci which, in the endeavour of the bronchus to cleanse itself, are carried to fresh alveolar units into which they get side-tracked and there set up a fresh focus of infection. This would be especially liable to happen where patches of central consolidation existed whose tiny bronchioles open into the larger air tubes.

LOBULAR PNEUMONIA.

As the virulence titre of the invading organism is increased, though the initial states of the cleansing of the bronchi and the side-tracking of the infecting material are the same, the inflammatory reaction produced becomes both more extensive and more intense in nature. The power of the cocci rapidly to reproduce themselves is increased, so that they are much more easily found in the earlier stages, and are no longer confined by the limits of the alveolar unit, but spread directly into others lying around it. The nature of the inflammatory reaction is changed owing to an increase of the numbers of polymorphonuclear leucocytes and consequently a diminution in the preponderance of the larger alveolar cells. The serous exudate is increased and fibrin may begin to be formed in it. The capillaries again become more and more engorged up to about the fourth day, but then, especially in the centre of the patch, they become rapidly obliterated by the pressure of the exudate in the alveoli which are now not merely filled but widely distended by it. Though in the earlier stages the polymorphonuclear exudate is already beginning to take place, serum and desquamated alveolar cells, which are often fatty, at first predominate. It is during this early period that cocci are most conspicuous. Though the inflammatory patch has become much larger, its periphery is still similar to that of the smaller patch with catarrhal exudate taking place at a fairly early stage. These patches may become so large that they coalesce and thus form the more extensive lobular type of lesion (Fig. 4). At all stages, however, the original foci can be identified by the more intense nature of their reaction and by definite zoning round them. As has been already mentioned, the lobular lesions tended to occur with a titre of about 5. The bronchioles in the affected

FIG. 4.



Rabbit. Lobular pneumonia. Large area of consolidation extends from central bronchus to pleura (over which is dry pleurisy) with a smaller patch on opposite side. Vein (v) shows peri vascular infiltration.

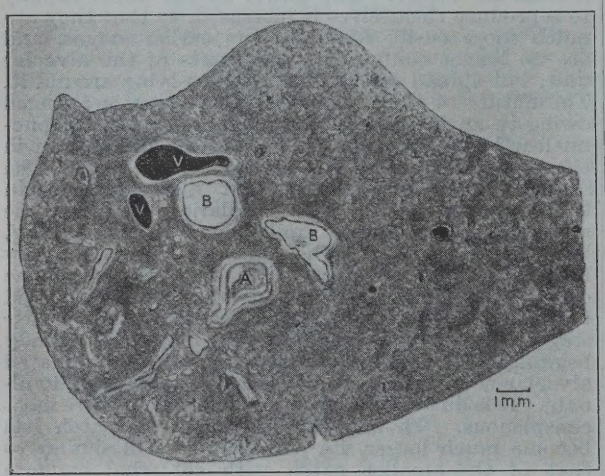
area now begin to show changes, losing their epithelium and often becoming difficult to distinguish from the surrounding consolidation. The intensity of the process of the removal of exudate by the lymphatic channels also increases so that the larger lymphatics round the larger vessels become conspicuous, being dilated with serum and débris. The perivascular lymphatic reaction which occurs in the later stages also increases in intensity.

LOBAR PNEUMONIA.

With a further rise of titre to a value of between 5 and 6, if a suitable dose is introduced, a lobar lesion is obtained (Fig. 5). The organisms have now a

much greater power of reproduction and invasion and spread rapidly throughout the lobe, being apparently able to keep in advance of the host's attempt to localise them by inflammatory reaction until the periphery of the lobe is reached. A lobar lesion 24 hours old shows the process clearly. Reaction is then still patchy and most intense at the centre of each patch, but the patches are rapidly coalescing by the junction of their peripheries where the exudate s almost entirely serous. It is in this peripheral serous

FIG. 5.



Rabbit. Lobar pneumonia. General consolidation of whole lobe except for a few atria. The lighter zone of perivascular infiltration is becoming conspicuous; epithelium of larger bronchi still intact.

exudate that by far the largest and most vigorous cocci are to be found. They are lanceolate in shape and stain deeply, while at the centre of the patch they are already beginning to be destroyed, being small, rounded, and often poorly staining. Polymorphonuclear reaction is now becoming intense at the centre of each nodule and soon spreads further and further, so that by about the fifth day the whole lobe is in the condition which is so familiar and is commonly called the stage of grey hepatisation, the lobe being enormously enlarged and the alveoli widely distended with polymorphonuclear exudate. By suitable staining with Sudan III. in order to show fat changes, zoning can still be demonstrated, the earlier exudate at the central foci being the more degenerate and showing greater fatty changes.

In this lobar form of lesion the distension of capillaries does not reach its maximum till about the fourth day, after which the capillaries become somewhat suddenly obliterated by alveolar pressure. The lymphatic system becomes widely dilated throughout the lobe, distension reaching a maximum at about the third day. The large lymphatics round the larger vessels are then extremely conspicuous, being often nearly as wide as the lumen of the blood-vessel itself. The bronchi and the bronchioles are now widely involved. Their epithelium becomes desquamated, they are filled with exudate, and merged into the general consolidation. These bronchial changes, however, occur later than those of the surrounding alveoli, and therefore appear to be secondary and not primary.

As has already been mentioned, cocci are most conspicuous at the spreading edge in the earliest stages. They can easily be found up to the third day, they are much more difficult to find on the fourth day, and by the fifth day they have practically disappeared. Attempts have been made to study the methods by which they have been dealt with, and two processes appear to take place during these earlier stages. The first of these is their destruction extracellularly in the alveoli; cocci tend to become agglutinated into little clumps, they stain more and more indistinctl their staining portion becomes smaller and small till finally they disappear. The second process is phagocytosis by polymorphonuclear cells, certa individuals of which become crowded with coc These tend to aggregate round the vessels and pe vascular lymphatics and have also been found the lymphatic channels and in the peripheral sinus of the lymph nodes. Others have been found in t lumen of blood-vessels. These appearances sugg that certain polymorphonuclear cells after becomi filled with cocci leave the inflammatory area eith by returning to the blood stream or by passing the lymphatic channels to the lymph glands. Th point will be referred to again later.

DOUBLE PLEURISY AND PERICARDITIS.

The earlier experiments at titres between 5 and gave results which were very confusing; occasiona a lobar pneumonia was obtained, but more oft the changes in the lung itself were incomplete a a widespread invasion of the serous cavities of t thorax took place. More accurate measurement the dose of culture given gave the explanation of th It was found that if the dose was too large doul pleurisy and pericarditis was produced, but wi the correct dose a lobar pneumonia. Both types lesion were produced by suitable dilution of a sin culture. The explanation appears to be that, if t dose is too large, the rapid spread of the invadi cocci can no longer be limited by the pleu surface of the lobe, but cocci rapidly pass throu into the pleural cavity in great numbers. Th progress still cannot be limited by the walls the one pleural cavity, but they rapidly spre directly into the other and also into the pe cardium. The reason why the changes in t original lobe do not assume the proportions fou in lobar pneumonia is probably due to a lack of sup of sufficient polymorphonuclear leucocytes. Su enormous numbers are poured out into the th serous cavities that not enough are left to produc true lobar distension. The pressure of the pleu exudates also tends to inhibit the filling of the lo A lesion of this type, though apparently so seve does not by any means always cause the death of t animal. If the latter survives to the sixth or seven day, cultures from all three serous cavities are usua sterile; the invasion, though so widespread, has b successfully dealt with.

MILIARY OR SEPTICÆMIC PHENOMENA.

In many experiments at this titre the animal d not, however, survive. A septicæmic invasion of blood occurs and proves rapidly fatal, whether lesion is lobar in type or takes the form of dou pleurisy and pericarditis. The lesions characteris of the septicæmic or miliary type have been descril by M'Gowan and M'Neil [6] in very fatal epidem which broke out amongst boys in certain reformat schools. The characteristic pathological finding was intense septicæmic invasion of the blood stream the pneumococcus. Their sections were shown to Pathological Society of Great Britain and Ireland 1914. The lesions consisted of a patchy serous exud into the alveoli, accompanied by desquamation alveolar cells and often by small hæmorrhages wit complete absence of any polymorphonuclear reacti but intense engorgement of capillaries and ot vessels of the lung.

This description applies equally well to the c ditions experimentally produced in rabbits by eit the introduction into the lung of pneumococci extreme virulence, titre 6–7, or the intravenous intraperitoneal injection of cocci sufficiently virul to kill the animal. (Fig. 6.) The condition has been described by Armstrong and myself [7]; it alm always occurs in small children and is extremely fa death taking place within 48 hours. It probably occ sporadically throughout the country. From the descr tions given, certain of Blake and Cecil's [8] experime in monkeys also produced lesions which appear to h been of this type, death taking place early, with diff

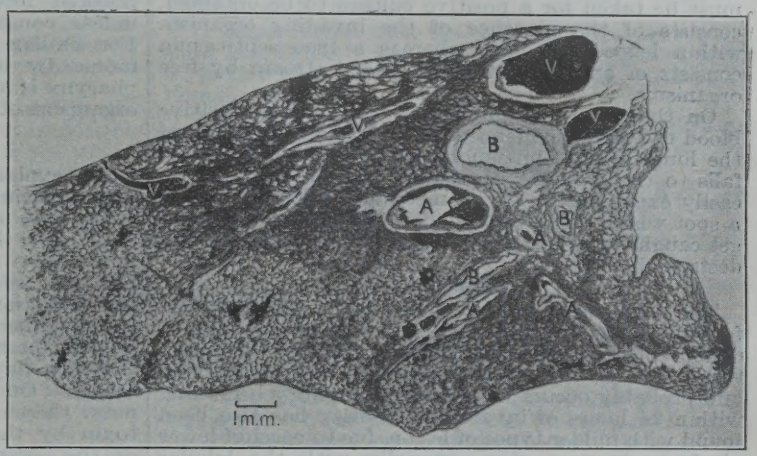
hanges throughout all lobes of the lung. They consider hese cases to be merely extreme early examples of lobar neumonia, but it must be remembered that changes f virulence were not accurately controlled in their xperiments, so that the titre may well have been at imes sufficiently high to produce a septicæmic lesion. Changes of this type are usually present in the ther lobes of the lung when septicæmia intervenes in lobar pneumonia. Even when the itre is above 6, so that the septicæmic ision is produced with extreme apidity, the site of the original invaon can still be identified by a lesion emonstrating that an early attempt as been made by the host to destroy . The alveoli at the original foci are istended with polymorphonuclear ells which have been extruded in ie earliest stages of invasion and ave even been successful in locally estroying the pneumococci. The ntrast between the almost complete sence of cocci in these small foci d the immense numbers which varm throughout the rest of the ng is very remarkable. There thus pears to be a critical time depending, any rate partly, upon the power of pid reproduction of the coccus, when e general defences of the body beme completely paralysed and a fulminating" condition arises in ich the bacteria can riot unopposed.

LYMPHATIC DRAINAGE.

In a few experiments at the lobar re another system became inlved with extremely fatal results. ention has already been made of the great distension the lymphatics of the lung in the earlier stages the more severe but still localised types of lesion. ough the lymphatic channels contain all sorts of bris which must have been derived from the alveoli the lung, free cocci are, as a rule, completely sent, only an occasional polymorphonuclear cell ntains them, and the contrast is great between the e lymph channel and the alveoli next to it, in which cocci are numerous. Occasionally an intense asion of the whole lymphatic system has taken ce and the picture is reversed. Extremely large, ply staining, lanceolate diplococci swarm through- the lymphatic channels and show up much more spicuously than the cocci in the alveoli, which small and poorly staining. There thus appears be usually a great power of resistance to invasion appertaining to the lymphatic system, even in its smallest channels. A critical point can, however, be reached with a sufficiently virulent organism, when this resistance completely breaks down, just as is the case with the blood stream.

These results are, perhaps, of wider and more general application. They indicate that the swelling of the lymph gland, which belongs to any inflamed tissue, is usually caused by débris drained from the part affected, which is in itself sterile, except for the presence of organisms which, as a rule, are safely enclosed in leucocytes and become filtered out in the peripheral sinuses of the lymph gland. Such organisms are mostly killed by the leucocytes; if all are destroyed the gland subsides without breaking down, but if some are successful in destroying their host the gland then suppurates. Occasionally, however, an infection is of such virulence that the power of resistance of the peripheral lymphatics becomes destroyed. The lymphatic system draining the part undergoes a true invasion and an acute lymphangitis takes place.

FIG. 6.



Rabbit. Miliary pneumonia (septicæmic). Small hæmorrhages widely scattered, a specially large one (H¹) just below the largest artery, above and to the left of which is an incomplete serous œdema filling the more central alveoli. Arteries and veins engorged, bronchi intact. The hæmorrhages H are shown on the accompanying tracing (6A).

FIG. 6A.

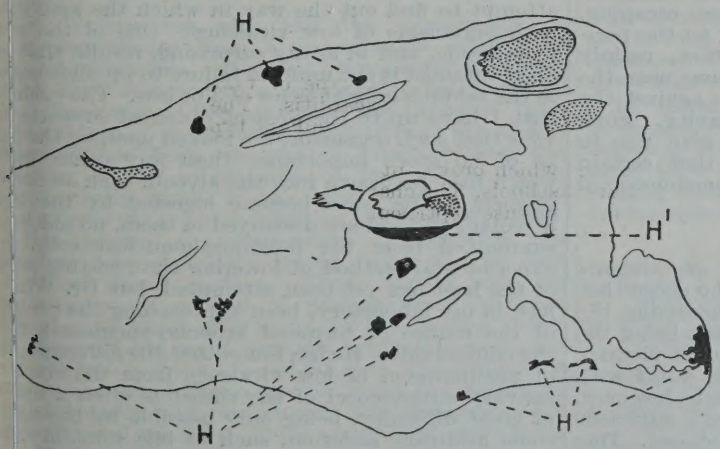


Diagram of Fig. 6 showing the hæmorrhages (H).

INVASION OF THE BLOOD STREAM.

I have also arrived at a similar view with regard to the presence of cocci in the blood stream. Throughout these experiments blood cultures have always been made at whatever stage the animal is killed, and in all the more severe forms of lesion blood films have been examined. In all experiments where definite lesions have been obtained and the animal has been killed on the first or second day, blood cultures have been positive. By the fifth or sixth day, even when the lesion is severe, the blood culture has almost always been sterile. Thus organisms are always present in the blood at the earlier stages.

In order to be found in film they must, of course, be present in very considerable numbers. By methods of dilution, &c., I have endeavoured to correlate the findings in film and culture, and have found, when culture methods show that cocci are sufficiently numerous to make it reasonable to expect to find them in film, that first, all cocci found are within leucocytes; and secondly, that the numbers found in film are much greater than culture methods would indicate. It is only when counts begin to reach values

of 500,000 to 1,000,000 cocci per c.cm. that free pairs begin to appear in film. This would indicate that in the blood stream also the invasion is not a true one when the virulence of the organism is below a certain value, but that all organisms present are contained within leucocytes. The disproportion in count and film would mean that the great majority of such enclosed cocci are non-viable. The suggestion can therefore be made that a bacteriæmia, which is so commonly present in the earlier stages of many diseases and in which considerable quantities of blood must be taken for a positive culture to be obtained, consists of the presence of the invading organism within leucocytes only, whereas a true septicæmia consists of an invasion of the blood stream by free organisms.

On this line of argument the value of a positive blood culture as evidence that the path of invasion of the lung in lobar pneumonia is by the blood stream falls to the ground. Metastatic foci of infection are easily explained by it. A metastatic focus is merely a spot where a bacterium-laden leucocyte happens to get caught up when the bacteria gain the victory and destroy the host.

PLEURISY.

The relationship of pleurisy to lung lesion has been found to vary very considerably. The intense form of double pleurisy and pericarditis which occurs with titres of high virulence has already been described, and probably occurs with extreme rapidity beginning within 24 hours of invasion. Pleurisy has also been found with milder types of lesion due to cocci of lower virulence in connexion especially with the lobular type of lesion. In its mildest degree it consists of a patch situated over a lobular lesion which has just reached the surface; the patch then has been found to be sterile at all stages. When the lung lesion is larger, the pleurisy, though local, is sometimes infected, but usually when this takes place the whole pleural cavity soon becomes involved and considerable effusion takes place. A lobar lesion has also been obtained accompanied by unilateral pleurisy with effusion. The evidence tends to show that such lesions, restricted to one pleural cavity, take place some time after the initial invasion and that cocci persist in them after they have been destroyed in the lung.

PERICARDITIS.

In a few experiments the pericardium alone has become infected, both pleural cavities escaping. The relationship of the root of the lung to the pericardium is very close, and an infection, mainly localised to the central region of the lung near the root, can reach the surface where it lies against the pericardium and directly invade this cavity. Such pericarditis, if recovered from, would give rise to adherent pericardium, which suggests that certain cases of this condition may arise from a pneumococcal infection by way of the lung.

MINIMAL EFFICIENT DOSE.

I have already mentioned that my experiments confirm those of Lamar and Meltzer,[2] who claim that the type of lesion does not alter by increasing the dose; the exception which proves this rule being the production of lobar pneumonia and double pleurisy and pericarditis at the same titre. One point with regard to the dose introduced into the lung is, however, most important; at any particular titre a sufficient dose must be given or no lesion will be produced. This minimal dose diminishes rapidly with rise of titre (see table). Its value at titre 4 is approximately 1/10 c.cm. and at titre 5 1/100 c.cm. and at titre 6 1/1000 c.cm. It therefore follows that in nature it is much easier for an organism of high titre to infect the lung. This perhaps throws light upon the rarity of pneumococcal broncho-pneumonic lesions in adult man; the defences of the pulmonary system and its cleansing power are so great that it is almost impossible for an organism of a virulence such as should produce broncho-pneumonia to make good any invasion. Only when the host defences are destroyed by some such process as a severe cerebral lesion can sufficien material obtain entry. An experiment of Lamar an Meltzer bears upon this point. They found tha by cutting the left vagus they could produce lesion in a dog's lung with doses which, in the intact anima had no effect.

In experimental work it is most important to u a method which will introduce the culture right in the lobe of the lung. The cleansing power of t trachea is enormous, and the experimental resul are quite uncertain if the culture is, for instanc injected into the trachea just below the laryn unless comparatively enormous volumes are use For similar reasons, any attempt to produce pne monia by introduction of cultures into the nas pharynx is almost bound to fail unless large doses organisms of extremely high virulence are introduce

CRISIS.

An explanation of the remarkable phenomen which occurs in lobar pneumonia, known as t crisis, may now be attempted. I have already stat that cocci have practically disappeared from t lung on the fifth day, but are usually easy to find the more severe lesions until then. Now, the ch toxin of the pneumococcus is an endotoxin whi is only liberated when the cocci are killed. The is thus an increasing liberation of endotoxin up the fifth day, but after that the supply practica ceases. One of the factors determining the cri may, therefore, be the final neutralisation of en toxin by the defences of the body 48 hours la on the seventh day. Another extremely interesti phenomenon has been demonstrated by Armstron He has shown that in lobar pneumonia the protect power of the serum, which is extremely slight at t onset of the disease, practically vanishes after 24 ho and remains absent for the first four days. On t fifth day it suddenly reappears and increases en mously and with great rapidity to a maximum on t seventh or eighth day. It then slowly diminis throughout convalescence. The rapid rise of t power to destroy pneumococci coincides with crisis. The combination of these two processes th affords some explanation of the regularity with wh crisis occurs on or about the seventh day.

LOW VIRULENCE ORGANISMS: TERMINAL PNEUMON

Investigations are also being pursued in order attempt to find out the way in which the lung de with organisms of low virulence. One of the m remarkable, and in a way surprising, results that been obtained is the uniform failure to produce lesi in the rabbit's lung at titres of 3 or less. The evide that I have up to the present obtained supports view that such organisms are looked upon by the h as of no more importance than any other déb which may be drawn into the alveoli, such as car pigment. The cocci become ingested by the la alveolar cells and are destroyed in them, no aid be summoned from the polymorphonuclear cells. experimental method of lowering the resisting po of the host has yet been attempted, but Dr. Whi has, in my laboratory, been approaching the prob of the nature of terminal broncho-pneumonia fr the clinical side. He has found that the differentiat of pneumococci of low virulence from the comm salivary streptococci of the throat is often a ma of great difficulty, being only possible by the us some arbitrary criterion, such as bile solubility, criterion which he has finally fixed upon. He also found that using this criterion, many term pneumonias appear to be due to salivary streptoc and not to pneumococci. The true pneumoco of low titre is more frequently found in such condit as chronic bronchitis. He is inclined to believe the statement that over half the dwellers in our la cities have pneumococci in their throats is an erron one, due to the inclusion of many salivary stre cocci among the pneumococci identified. I h performed a few experiments with streptococci, have been able to produce lesions in the ra

n all respects similar to those produced by pneumo-occi. It is thus possible that many terminal pneu-nonias are streptococcal in origin, not pneumococcal.

OTHER TYPES OF PNEUMOCOCCUS.

All the work hitherto described has been done with he single strain of Type I. pneumococcus. I have een endeavouring to reproduce the results with rains representing Type II., Type III., and the nagglutinable Group IV. With the latter, which as obtained in pure culture from a case of penoph-nalmitis and had a titre of 5, the range of lesions roduced with the Type I. organism have been fairly curately reproduced; the titre of the organisms quired to produce any lesion such as double pleurisy nd pericarditis is, however, slightly lower than that ecessary in the case of Type I.

Unexpected difficulty was found with the Type II. nd Type III. organisms. Not only was it impossible raise them to a titre higher than 5 by mouse assage, but even when at their highest titre it was npossible to kill rabbits by intraperitoneal injection, hich can be done with certainty with the Type I. ganism. At this titre the most extensive lesion at could be obtained in the rabbit's lung was of bular type, and the lesions were on the whole of lower grade than those of Type I. at a corresponding re. These organisms thus appear to have a lower thogenic power both to mice and rabbits, and, these experiments can be applied to the case of man infections, it would help to explain the great evalence of Type I. organisms in the more severe ng lesions.

Dr. Whittle has also been attempting to correlate e titre of organisms obtained from human lung sions with the experiments I have described. He s found, in agreement with other observers, that r far the greater number of pneumococci associated th severe human lesions are of Type I., and that very close correspondence can be shown to exist tween human and experimental rabbit lesions at y particular titre, lobar lesions in man being sociated with titres from 5 to 7 and broncho-eumonic lesions with titres below 5. With lesions low grade, where the titre of the organism is also v, Type I. is comparatively uncommon. In order make the analogy closer we have introduced a mber of these organisms into rabbits' lungs and have tained a close correspondence in each experiment the human lesion from which the strain was tained.

Dr. Whittle has also had the opportunity of amining strains from a considerable number of ses of pneumonia, extending over nearly two years, hich have occurred in a somewhat isolated village ar Cambridge; the outbreak has therefore been the nature of an epidemic. The titre of the strains overed has been remarkably constant, and the mbers of the inhabitants of this village, being mparatively small, it has been possible to draw a scheme of the paths infection has probably taken. I this instance a pneumococcus of high titre has erefore been definitely traced from case to case actual direct contact. These results open up prospect of control of pneumococcal infection so far as lobar pneumonia in the healthy adult concerned, and point very strongly to the necessity the isolation of this type of disease. The occurrence pneumococci of titre 5 or over in the human throat undoubtedly very uncommon; the organisms with eumococcal reactions, which are present, are almost ays of quite low titre.

SUMMARY.

My endeavour in this lecture has been to put before y certain experimental facts which can, I think, legitimately applied to man. They show that the e of the infecting organism is all important, and that s determines both whether a lesion will be produced all and what the nature of that lesion will be. bar pneumonia in the healthy adult is due to anisms of titres between 5 and 7, which are otherwise comparatively rare. The deduction may be made that it is spread by direct contact infection passing from throat to throat, though very possibly intermediate carriers are often concerned. I must apologise for having concentrated mainly on my own work, and for not having attempted any comprehensive review of the literature of the subject and the value of the work of many other observers, so I hope you will forgive me for perhaps dwelling overmuch upon the details of experiments which have been my chief interest for the last seven years.

The following is a summary of conclusions which I think can be made.

1. Experiments with the pneumococcus on rabbits show a sufficiently close analogy to its effects on man to justify the application of the results obtained to human disease.

2. The estimation of the virulence of the infecting organism is of the utmost importance. The virulence titre can be conveniently measured in mice.

3. Organisms whose titre is below 3 have no pathogenic value in the healthy host.

4. Organisms of titre 4 produce broncho-pneumonic lesions.

5. Organisms of titres between 4 and 5 produce lobular lesions.

6. Organisms of titres between 5 and 6 produce either: (1) lobar pneumonia, or (2) general infection of the thoracic serous cavities.

7. Organisms of titres between 6 and 7 produce either: (1) lobar lesions, which become septicæmic; or (2) the septicæmic or miliary lesion.

8. The septicæmic lesion is the form always produced by a true blood infection.

9. If a lesion is produced a temporary bacteriæmia always occurs in the early stages.

10. An effective dose diminishing with rise of titre must reach the lobe of the lung for a lesion to be produced.

11. The lymphatic system is as a rule sterile, except for organisms enclosed in leucocytes, while engaged in draining away the débris of the inflammatory reaction produced.

12. Any breakdown of this protective power causes a true lymphangitis and makes the prognosis very grave.

13. The reaction in broncho-pneumonia is often of a grade insufficient to completely destroy invading organisms, some of which escape into the bronchi and are carried to other parts of the lung producing fresh foci of infection. This gives an explanation of relapsing broncho-pneumonia.

14. Lobar pneumonia in the healthy adult is due to organisms of titres between 5 and 7 which are otherwise comparatively rare. The deduction may be made that it is spread by direct contact, infection passing from throat to throat, though very possibly intermediate carriers are often concerned.

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MINOT-MURPHY LIVER DIET IN ADDISONIAN ANÆMIA:

REPORT OF TWO CASES.

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AND
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RUTHIN CASTLE.

Addisonian anæmia calls for Heraclean courage on the part of the physician. Any measure, therefore, which helps in the fight against this disease is worthy of consideration and wide trial. Minot and Murphy [1 5] in America have described a diet which has given good results in their hands, the improvement lasting in certain cases as long as three and a half years, which is the length of time the treatment has been in use. Briefly, they give large amounts of mammalian liver, cooked and raw, with plenty of vegetables and fresh fruit, but little fat.

The method was brought to our notice by a letter from a former dietitian at Ruthin Castle who accepted a post in the Massachusetts General Hospital, Boston, and to whom fell the duty of administering the diet in a number of Dr. Minot's cases. This lady has published a paper setting forth the diet tables and cookery which had been found most useful.[2]

Two cases were then treated on these lines at Ruthin Castle, and the results are set out below.

CASE 1.—Male, aged 49. Two great-aunts died from Addisonian anæmia. Three years ago had sore tongue, breathlessness on stairs, and pain in left side; treated with hydrochloric acid and improved. Two years ago pallor and loss of energy and strength; slight exertion caused palpitation and breathlessness. Red count 1,800,000

TABLE I. (Case 1).

Date in 1927.	Hæmoglobin (per cent.).	Red cells (in millions).	White cells.	Colour-index.	Nucleated reds per 100 whites.	Macrocytes.	Microcytes.	Poikilocytes.
May 20th	40	1·16	2000	1·7	0	++	++	++
June 2nd*	40	1·10	2200	1·8	1	++	++	++
,, 3rd	41	1·25	2600	1·7	2	++	++	++
,, 8th	31	1·14	2200	1·4	0	++	++	++
,, 27th†	28	0·90	2200	1·6	0	++	++	++
July 2nd	38	1·18	4600	1·6	—	—	—	—
,, 18th	70	2·80	5200	1·2	—	—	—	—
Sept. 3rd	103	4·40	6200	1·2	0	0	v.f.	0

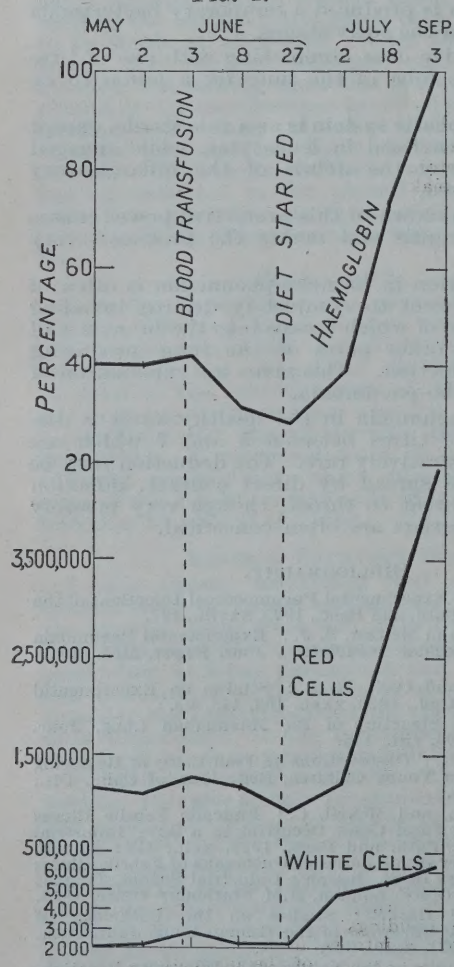
* Blood transfusion.
† Minot-Murphy diet begun. v.f. = Very few.

Recovered with arsenic, rest, and fresh air. Six months before admission, pallor, dyspnœa, and weakness returned and did not yield to treatment so readily. Admitted Ruthin Castle, May 19th, 1927. Lemon yellow colour, pale conjunctivæ, weak, sore tongue, palpitation and breathlessness on least exertion, confined to bed. Blood hæmoglobin 40 per cent., red cells 1,160,000, white cells 2000, no nucleated red cells, but megalocytes, macrocytes, microcytes and poikilocytes present. Fractional test-meal showed achylia. Patient was treated with rest, fresh air, arsenic injections, and acid drink by mouth, but went steadily down hill. Transfusion of citrated blood produced only slight temporary improvement, and in view of a severe reaction (rigor, temperature 105° F., pulse 160, cyanosis and disorientation) was not repeated. On June 27th feeding with liver was commenced, and within a few days the patient felt better and her blood condition improved, as is seen in Table I. The figures are represented graphically in Fig. 1.

Present condition (Sept. 3rd).—Good colour, appetite normal, no breathlessness, can walk upstairs two steps at a time, and is back at work. There is occasional tingling of the fingers and the tongue is a little sore at times.

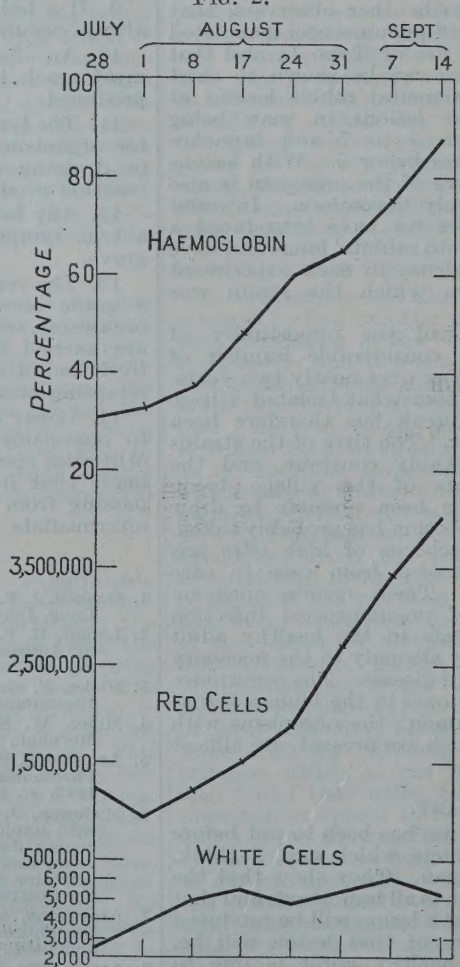
CASE 2.—Female, aged 63, no known anæmia or subacute combined degeneration in family. Twelve months ago began to get easily tired, sore tongue, made sick by food, breathless, palpitation. Bed ever since, treated with iron and arsenic in various forms. Admitted Ruthin Castle July 26th, 1927, lemon coloured, pale conjunctivæ. Circulatory system: Soft systolic bruit at apex, extrasystoles every five–six beats. Blood: Hæmoglobin 31 per cent., red cells 1,200,000, and white cells 2200; colour index 1·3, nucleated red cells, macrocytes, microcytes, and poikilocytes present. The average red cells were normal in size but many were elongated (a point stressed by Prof. van den Bergh at the recent meeting of the British Medical Associati

FIG. 1.



Changes in the blood in Case 1 after blood transfusion and on liver diet.

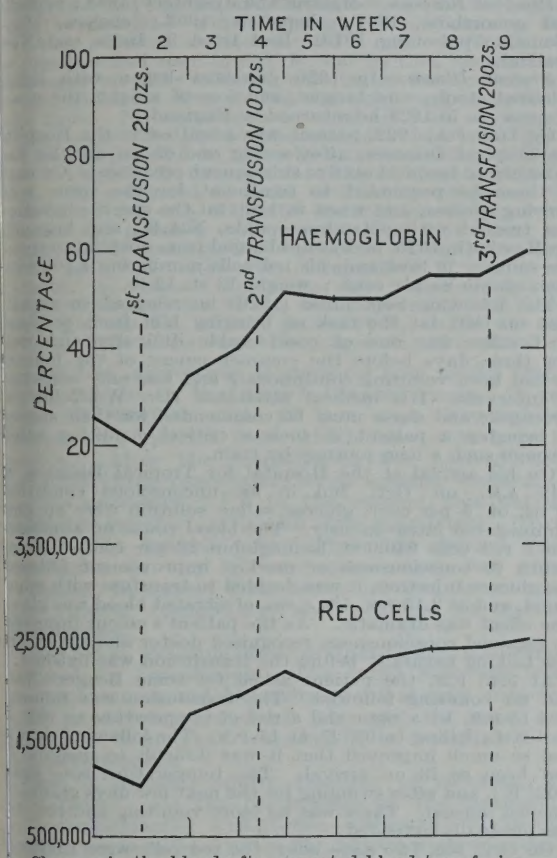
FIG. 2.



Changes in the blood in Case 2.

n Edinburgh). No reticulated red corpuscles were seen. A fractional test-meal could not be done as patient vomited he tube even after the throat was anæsthetised. The fæces ontained anaerobic Gram-positive rods regarded as *Bacillus velchii*. Patient was treated with rest, fresh air, liver diet, rsenic injections, and acid drink by the mouth. With the

FIG. 3.



Changes in the blood after repeated blood transfusion.

ception of the diet these therapeutic measures had been ed in various forms during the previous 12 months. e blood changes are shown in Table II. and Fig. 2.

Present condition (Sept. 14th).—Good colour, appe- e normal, can walk half a mile daily without

TABLE II. (Case 2).

Date in 1927.	Hæmoglobin (per cent.).	Red cells (in millions).	White cells.	Colour-index.	Nucleated reds per 100 whites.	Macrocytes.	Microcytes.	Poikilocytes.	Reticulated red cells per 500 red cells.
ly 28th	31	1·20	2200	1·3	2	+	++	++	0
gust 1st	33	0·90	—	1·8	0	+	++	++	0·9%
,, 8th	37	1·18	4800	1·6	0	+	++	++	1·2%
,, 17th	48	1·50	5400	1·6	0	++	+	+	3·0%
,, 24th	60	1·86	4700	1·6	0	++	(+)	+	1·2%
,, 31st	65	2·70	5300	1·2	0	—	—	—	0·9%
pt. 7th	75	3·40	6000	1·1	0	v.f.	few	inf.	0·9%
,, 14th	87	4·00	5000	1·1	0	v.f.	v.f.	inf.	—

v.f. = Very few. inf. = Infrequent.

eathlessness or palpitation, tongue not sore, heart iet and regular.

Fig. 3. is included for comparison, as it shows the e of improvement of the blood in a case which l well with transfusions. This case was reported one of us recently.[3]

It is obvious that, although the blood began to over within a few days of giving the diet, we may in each case be dealing with a remission. We have, however, seen many remissions in this disease, and are of opinion that these patients have improved more definitely and rapidly than is usual. Further, Case 1, a medical man, had already had the experience of three remissions, and he has no doubt that his recent improvement has a character of its own.

In the belief that the diet has given valuable help to these patients, we make this communication with the object of encouraging a wider trial.

A full account of the régime, with typical diets, is given by Miss E. A. Nicholls in the paper referred to above, and by Miss Thelma Tubbs and Miss Elizabeth Bellinger.[4]

The dietetic treatment may be summarised as follows:—

Mammalian liver essential: Calves', beef, pigs', from 90 to 240 g. (3 to 8 oz. cooked weight) daily.

Encourage: 1. Kidneys. 2. Chicken livers. 3. Red meat (without the fat)—beef, lamb, mutton, calves' or ox heart. 4. Fruits (fresh, tinned or dried, up to 12 oz. a day): Oranges, grapefruit, raisins (steam until soft before serving), prunes, strawberries, peaches, apricots, or pineapple, 5. Vegetables (cooked or raw): Lettuce, cabbage, spinach, tomatoes, asparagus, or other vegetables.

Permit: One egg, milk (half a pint), tea, cocoa. Toasted wholemeal bread, plain biscuits. Potatoes, macaroni, cereals. Sugar not to exceed 20 g. (⅔ oz.) a day. Pickles, relishes, salt, and vinegar. Poultry. Fish. Shell-fish.

Avoid: Fats, not to exceed 70 g. (2½ oz.) a day. Bacon, pork. Butter. Cream. Cheese. Oils, olive oil in dressings, &c. Nuts.

In our patients the liver was taken in the following forms: Lightly roasted, almost raw in sandwiches, underdone in soup, and as a cream. Two full days' diets are set out hereunder:—

Diet I.—Breakfast: Fruit juice; porridge; boiled egg; toast, butter, marmalade; coffee, milk.

11 a.m.: Raw beef and liver sandwiches.

Lunch: Fried liver, onion, and tomatoes; macaroni; spinach; salad; fresh fruit; toast.

Tea: Biscuit; jam; fruit; fruit salad and raisins.

Dinner: Vegetable soup with scraped raw liver; underdone chop or steak or liver; rice pudding with raisins; orange salad or fruit.

Diet II.—Breakfast: Fruit; porridge; toast, butter; coffee, milk.

Lunch: Fried liver; tomato, onion; green vegetables; rice pudding with raisins; stewed fruit; toast, butter, milk.

Tea: Biscuits; jam; fruit; tea and milk.

Dinner: Vegetable soup with raw scraped liver; fish; meat or liver dish; green vegetables; milk pudding; stewed or fresh fruit.

Our thanks are due to Mr. J. G. S. Jeffery, B.Sc., and Mr. A. J. Leigh, B.Sc., who made the blood estimations.

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HEALTH MINISTER'S VISIT TO LANCASHIRE.—Mr. Neville Chamberlain recently visited some of the principal institutions administered by the Manchester Corporation. He said he believed in seeing the great centres of local government for the sake of getting into touch with local administration and feeling, and so that the administrators of local government might themselves understand what he was endeavouring to bring about. He also inspected the District Council's housing scheme at Ormskirk, and cut the first sod of the £30,000 sewage scheme of the West Lancashire Rural District Council at Maghull, near Liverpool. Speaking at Ormskirk on the reorganisation of Poor-law institutions, he said that there were thousands of beds empty in these buildings, whilst there were queues of people waiting to get into voluntary hospitals. What was needed was a reorganisation of the institutions under the guardians and those belonging to the municipalities.

BLOOD TRANSFUSION IN SPRUE.

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IN the later stage of sprue a blood picture very like that seen in pernicious anæmia often develops. This hæmolytic type of the disease is very dangerous and often fatal.

A detailed account of the blood in such cases was given by one of us (G. C. L.) as long ago as 1912.[1] It was there pointed out that in the later stages it might be practically impossible to differentiate the blood picture of sprue anæmia from that of true pernicious anæmia. On this picture some have argued a relationship between the two diseases, or even their identity, but sprue is a definite entity with a symptomatology and pathology of its own and is not pernicious anæmia.

Transfusions of whole blood have been used for some time in pernicious anæmia, septicæmia, loss of blood from hæmorrhage, often with very beneficial results, and recently a patient suffering from the hæmolytic type of sprue was transfused with whole blood just before coming to us. Under our treatment the sprue improved and he apparently completely recovered, but after leaving us and living at home for some time he relapsed and again developed a very severe type of anæmia. We therefore took him back into the Hospital for Tropical Diseases and, his wife being a suitable donor, her blood was used for the transfusion.

A Short Résumé of the Cases.

CASE 1.—European male, aged 58. Residence abroad, India and Mesopotamia. Previous illnesses: enteric fever, 1888; dysentery, 1890 and 1895.

Sprue began in 1917, with light-coloured stools and sore tongue, and persisted in spite of various methods of treatment. During this time patient was residing in Canada and England. By 1923 the disease had so progressed that the patient was admitted to a general hospital in England, his blood count reading: red cells 600,000, hæmoglobin 22 per cent. Three whole blood transfusions performed during a period of 27 days resulted in a rise of the red cells to 800,000, hæmoglobin 27 per cent. Four months later the count read: red cells 1,460,000, hæmoglobin 56 per cent.

When transferred to the Hospital for Tropical Diseases, London, on April 10th, 1924, he was still very ill and wasted. Weight 6 st. 12 lb., and the blood count was red cells 2,440,000, hæmoglobin 65 per cent. With our usual line of treatment he improved so much that he was able to leave hospital on August 1st, 1924, his weight having risen to 11 st. 1 lb., and the count to red cells 4,160,000, hæmoglobin 80 per cent.

During the following two years the patient returned to hospital twice for short periods of treatment, his blood having, on the occasion of the first readmission, fallen to red cells 2,000,000 and hæmoglobin 60 per cent., but on each occasion the anæmia responded to treatment.

On July 7th, 1926, the blood count had fallen to red cells 3,000,000 and hæmoglobin 75 per cent.; poikilocytosis and nucleated red cells were present, but after readmission to hospital on that date the decline continued in spite of the usual methods of treatment, until August 6th, 1926, when it was decided to transfuse with blood in the hope of checking it. The count on that day was red cells 2,300,000 and hæmoglobin 65 per cent.

The wife acting as donor, 700 c.cm. of whole blood were given by the citrate method. No rigor occurred, but the transfusion was followed by a rise of temperature to 100° F. Three days later a further decline had taken place, the count reading red cells 2,000,000, hæmoglobin 65 per cent., and a trace of albumin was found in the urine. By Sept. 7th following—that is, a month later—the red cells totalled 4,200,000 and hæmoglobin was 80 per cent., and the patient was discharged in the following week with a count of 4,700,000 red cells and 85 per cent. hæmoglobin, feeling much better in every way. He has reported at intervals since his discharge and was keeping well up to September, 1927.

[1] Jour. of Trop. Med. and Hyg., 1912, xv., 129.

An even more striking case is the following:—

CASE 2.—Mr. X., an old case of sprue, who had never been very anæmic, went home to Scotland. Apparently he relapsed there and rapidly deteriorated, his blood count falling and his general condition becoming alarming. It was then decided, though the risk was considerable, to bring him to London, where he arrived on the morning of Oct. 2nd, 1926.

Previous Illnesses.—Malaria and dysentery, 1888; syphilis and gonorrhœa, 1891; hepatitis, 1902; cholera, 1917. Ptomaine poisoning, 1919. Had lived in India and New Zealand.

Present Illness.—In 1920 diarrhœa began, with light-coloured stools, sore tongue, and loss of weight, the onset of sprue, so in 1921 he returned to England.

On Dec. 8th, 1922, patient was admitted to the Hospital for Tropical Diseases, after seeing one of us, and he had to return to hospital on five subsequent occasions. On each of these he responded to treatment for the sprue with varying success, and when in hospital the specific infection was treated with potassium iodide, N.A.B., and bismuth. On May 20th, 1926, he was discharged from hospital to spend the summer in Scotland, his red cells numbering 4,500,000, hæmoglobin 85 per cent.; weight 13 st. 12 lb.

The following September (1926) he relapsed so rapidly that on Oct. 1st the task of bringing him from Scotland to London was one of considerable difficulty and risk. For three days before the commencement of the journey he had been vomiting continuously and was only conscious at intervals. His medical attendant (Dr. W. Telfer, of Greenock) and nurse must be commended for their success in bringing a patient in such a critical condition safely through such a long journey by train.

On his arrival at the Hospital for Tropical Diseases at 8.45 A.M. on Oct. 2nd in an unconscious condition 10 oz. of 5 per cent. glucose saline solution were at once administered intravenously. The blood count on admission was: red cells 940,000, hæmoglobin 20 per cent. As no return to consciousness or marked improvement followed the glucose injection, it was decided to transfuse with whole blood, and at 2.15 P.M. 730 c.cm. of citrated blood was given. The effect was dramatic. As the patient's colour improved he regained consciousness, recognised doctor and sister, and was talking naturally before the transfusion was finished.

At 3.45 P.M. the patient asked for some Benger's food and no vomiting followed. The transfusion was followed at 4.15 P.M. by a rigor and a rise of temperature to 102° F. at 6 P.M., falling to 98° F. at 11 P.M. The following day he had so much improved that it was difficult to imagine he had been so ill on arrival. The temperature rose again (102° F.), and after swinging for the next few days gradually reached normal. There was no more vomiting and the diet was gradually extended.

On Oct. 4th, two days later, the red cells were 1,000,000 and the hæmoglobin 25 per cent. On Oct. 10th the red cells were 2,130,000 and the hæmoglobin 50 per cent., and thereafter the improvement was steadily maintained.

On Feb. 10th, 1927, the patient had picked up from his wasted condition. Seventeen days after admission his weight had been 12 st. 7 lb., and by the date of discharge had reached 14 st. 2 lb. At the same time the blood showed 5,240,000 red cells and 95 per cent. of hæmoglobin. Up to the time of writing he has had no relapse.

The following, a somewhat similar case, is also interesting.

CASE 3.—European male, aged 67. Residence in India for 43 years. Family history good, no asthma. Previous illnesses: measles, mumps, varicella, enteric fever (at 14 years), malaria; no definite history of dysentery.

In 1920 diarrhœa commenced with flatulent dyspepsia and was diagnosed as colitis. Improvement occurred on return to England on holiday, but on the voyage to India again in 1925 the diarrhœa recommenced, and for the year previous to admission to the Hospital for Tropical Diseases the stools had been white and bulky.

On entering hospital on July 5th, 1927, he was very wasted and anæmic, and his tongue was glazed and flabby and sore. the abdominal wall was wasted, but the abdomen was not distended; the liver was slightly diminished and he showed a typical picture of severe sprue. Blood count on admission was red cells 2,540,000, hæmoglobin 65 per cent.; weight 7 st. 3 lb. Urinary analysis: specific gravity 1010, otherwise normal. Wassermann negative. No ova or protozoa in stools.

As he did not progress under the usual treatment, and on four days later it was found that the red cell count had fallen to 2,020,000, it was decided to transfuse with whole blood.

The patient was found to belong to group III., a suitable donor was procured, and on July 12th, 1927, the patient's serum was tested against the donor's blood and no incompatibility was noted. The citrate method was used

with all the usual precautions, the blood being given by the needle and funnel method into the right cephalic vein. Transfusion was started at 2.30 P.M. and at once symptoms of hæmolysis and anaphylaxis manifested themselves. The needle was at once withdrawn, not more than 5 c.cm. having been given. The symptoms, in order of appearance, were: coughing, nausea, flushing; coldness of the skin, which became clammy, cyanosis of lips, vomiting, pulse accelerated but regular and feeble, severe pain in lumbar region; diarrhœa and shivering. The diarrhœa and shivering persisted at intervals till 5 P.M. At 6 P.M. the temperature had risen to 102° F., but by then his condition had improved. The following morning he was much better, he had had some sleep during the night, and was able to take fluids. No micturition occurred till 5.30, an interval of 26½ hours after the commencement of the transfusion, and then he passed 5 oz. of smoky urine containing albumin, a few red blood cells, hæmoglobin, and both blood and hyaline casts. He continued to make satisfactory progress. Six days later: red cells 2,200,000, hæmoglobin 65 per cent., albumin and granular casts present. Ten days later: red cells 3,040,000, hæmoglobin 70 per cent. Twenty-one days later: red cells 3,840,000, hæmoglobin 75 per cent., albumin, no casts. Forty-one days later: red cells 4,460,000, hæmoglobin 85 per cent., albumin, faint trace. The weight was 7 st. 13 lb., a gain of 10 lb., and he was able to walk a little in the ward. His progress is still satisfactory.

Case 1 is interesting as showing how useful transfusion can be in the most advanced cases. A red count of 600,000 with 22 per cent. hæmoglobin indicates a condition from which few could hope to recover. After the transfusions the patient kept well until three years later, when another transfusion became necessary. Up to the present this patient maintains satisfactory health (one year later). Three years is the longest period that has elapsed since transfusion in any of our sprue cases, but there is reason to expect that some of our later cases may recover completely, and require no further transfusions.

Case 2 is an example of the dramatic effect sometimes attained by transfusion. The rapid recovery from unconsciousness and the subsequent steady improvement greatly impressed all who saw the case, and convinced them that transfusion is essential in all such severe cases.

Case 3 presents many features of interest, the chief being: (1) the occurrence of the hæmolytic and anaphylactic symptoms, although no incompatibility was noticed when the bloods were previously tested; (2) the rapid recovery from the sprue condition though so small an amount of blood had been injected.

Conclusions.

Blood transfusion has now been established as a most important method of treatment in sprue. It would appear that the amount of blood given is not the important factor, though in cases like No. 1, where the patient's blood had fallen to a dangerously low level, a large amount of fresh blood would undoubtedly be a distinct benefit. The important factor seems to be that the blood injected stimulates the blood-forming tissues of the body. How this takes place is a matter for further investigation, but the blood seems to act in somewhat the same manner as do proteins injected in "protein shock" treatment.

In patients who have sustained a slight rigor or pyrexia following transfusion, the beneficent results appear to be as good and perhaps even more rapid than their appearance than in those cases where no rigor or pyrexia has appeared.

Cases of hæmolysis or anaphylaxis are fortunately rare. Case 1 had no symptoms, although the second transfusion, given three years after the first, might have caused them. Case 3 gave no history of previous injection of serum or protein and had no asthmatic history, and yet such severe symptoms occurred that life was only preserved by the prompt recognition of the onset of anaphylaxis and hæmolysis and immediate cessation of the transfusion.

As regards the treatment of sprue generally, several points of interest may be mentioned: first, the use of liver extracts in the form of liver soup; and secondly, the use of the so-called pulvis bataviæ. Recently Dr. George Minot, of Boston, in an address delivered before the American physicians, claimed that liver, and especially a fractional alcoholic extract thereof, is a specific in the treatment of pernicious anæmia. In the discussion that followed Dr. Bailey K. Ashford pointed out its remarkable efficacy in the treatment of the so-called "pernicious anæmias" of sprue. The use of liver in sprue goes back for 30 years or more. Castellani states that it is an old native remedy in Ceylon. It was extensively used by Sir Patrick Manson, and one of us (G. C. L.) has also used it for the last 20 years in an extensive practice of this disease. Though no very startling results can be claimed for it, it does seem to do good, and there is no reason why it should not, as the liver is shrunken in sprue and very probably does not secrete properly. We may, then, by giving liver extracts, supplement this deficiency.

Batavia powder is a specially prepared organic compound of lime, with traces of iron and manganese. It contains no vegetable matter. It is the ancient "Peter Sys's cure," which was used extensively in Singapore in the old days. Originally supposed to come from cuttle-fish bones, it is now prepared from ordinary lime and is a proprietary preparation still. It may act by supplementing the deficiency of lime which is present in the disease, but it also seems to act beneficially in controlling the diarrhœa. It may be given in 1 drachm doses twice or three times a day and continued until the stool becomes solid and well formed. It seems to have a real use in the treatment of the disease.

PERNICIOUS ANÆMIA,

WITH SPECIAL REFERENCE TO *BACILLUS WELCHII* AS THE CAUSAL AGENT.*

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IN 1888 William Hunter[1] published in THE LANCET his famous paper, in which he stated that pernicious anæmia was caused by a toxin elaborated in the intestine. Since then numerous theories have been advanced as to the cause of this disease, but the question is still unanswered to-day. In view of the recent revival of interest in Germany and America in the intestinal toxin theory, it would seem desirable to review briefly the arguments in its favour.

(1) *Clinical Signs.*—Starting at the oral end of the alimentary tract with sore tongue and gastric achylia and ending at the rectum with the discharge of peculiar chrome-coloured fæces, we have evidence of an abnormal condition of the gastro-intestinal tract.

(2) *Pathological Findings.*—As far back as 1860 Flint[2] noted changes in the mucous membrane of the stomach. These have been confirmed by Fenwick,[3] Osler,[4] and many other workers. Similar organic changes have been described more recently in the wall of the small intestine.

(3) *Bacteriological Findings.*—The abnormality of the flora found throughout the whole length of the gastro-intestinal tract supports this theory. Bacteriological evidence will be found later in this paper.

(4) *Evidence of a Chronic Intoxication.*—Moench, Kahn, and Torrey[5] state: "The qualitative effect on the blood and blood-forming organs, the symmetrical cord lesions, the degenerative atrophy of the mucous membrane of both stomach and small intestine, the endotheliolytic manifestations, all without conspicuous loss of weight, seem to be evidence of some undiscovered toxic agent assailing continuously and over a long period of time tissues which give rise to symptoms only when seriously and irreparably

* The work here recorded was done under the auspices of the Medical Research Council. The report was read in substance at the meeting of the British Medical Association at Edinburgh, July, 1927.

damaged. The vagueness of the history of early pernicious anæmia, characteristically a syndrome of increasing listlessness, indefinite nervous symptoms, complaints occurring in fourth and fifth decade, and in association with achylia, has been observed often enough in the early course of the disease to suggest pernicious anæmia, even without the characteristic blood changes. An onset of this character out of which the features of pernicious anæmia eventually emerge in itself suggests a toxic influence, unremitting and of extreme chronicity, to which the body reacts ineffectually."

The possibility that an undiscovered specific intestinal organism may be the causal agent has induced many workers in the past to make most careful qualitative examinations of the intestinal contents of persons suffering from pernicious anæmia. These efforts have always failed. In my opinion, this was to be expected, because I believe that chronic intoxication from the intestinal tract is the result, not of any unknown organisms, but of an abnormal situation and excessive numbers of organisms normally found in any healthy intestine.

In order to test this hypothesis I have elaborated a technique by means of which an actual quantitative estimation of the main groups of intestinal flora in a sample of fæces can be obtained. As this work is being published elsewhere, no details of the method will be given in this paper.

Quantitative Estimation of the Intestinal Flora.

A comparison of the intestinal flora of cases of pernicious anæmia and healthy subjects, if made qualitatively, would yield no information of value, since in both cases *Bacillus coli*, streptococci, and *Bacillus welchii* are found. When a quantitative examination is made, valuable information is forthcoming. Comparing the fæces of 30 cases of pernicious anæmia, with 33 samples from healthy persons, I found on the average that in pernicious anæmia the streptococci are increased from 100 to 1000-fold, the *B. coli* from 1000 to 10,000-fold, and the *B. welchii* from 100,000 to 1,000,000-fold. These results fully confirm the findings of Moench, Kahn, and Torrey.

This non-proteolytic fermentative flora, containing a very high proportion of viable organisms, is typical, and found in every case of pernicious anæmia.

Bacteriology of the Small Intestine.

I believe that this flora is found in the small intestine, and that the absorption of toxin takes place at this situation. We must remember that absorption is at its greatest in the small bowel, and would be correspondingly increased if the mucous membrane was damaged. Furthermore, the hydrogen-ion concentration is at the optimum for the production of "Welch" toxin, and in actual practice I find the *B. welchii* to be mainly in the vegetative and not in the spore stage in this situation.

It is impossible to examine the ileal contents in cases of pernicious anæmia, but for the following reasons it seems fair to assume that this abnormal flora exists in this situation. From examination of the total intestinal tracts of animals we find that, starting from a sterile duodenum, we reach the lower ileum where streptococci and moderate numbers of *B. coli* and *B. welchii* are found. In the colon these organisms are far more numerous. The greater the number found in the colon, the greater the number in the ileum. This has been confirmed by me on human beings at operations of the small intestine.

Examination of the stomach and duodenum in cases of pernicious anæmia shows an abnormal flora; the contents, instead of being sterile, show great numbers of organisms normally found only in the lower ileum and colon—i.e., streptococci and *B. coli*, sometimes one and sometimes the other predominating. These findings have been repeatedly confirmed, and are probably the result of achylia.

Van der Reis,[6] in 1922, by a special apparatus examined the contents of the small intestine in 19 cases of pernicious anæmia, and reports an invasion of organisms which are normally found only in the colon. Finally, Seyderhelm,[7] in order to confirm these findings, established an ileostomy in ten cases of pernicious anæmia, and reports that a brown fluid was evacuated which could not be distinguished from stool in appearance, odour, or bacterial content. It may safely be concluded, therefore, that from the stomach to the rectum there exists in pernicious anæmia a great quantitative increase of streptococci, *B. coli*, and *B. welchii*.

The Causal Organism.

Whether the intoxication is the result of all three organisms or of one particular organism is still unsettled. William Hunter believed the streptococcus to be the cause. Many workers blame the colon bacillus. Dr. A. F. Hurst, in his remarks at the meeting of the British Medical Association at Edinburgh in July, held both responsible, and dismissed *B. welchii* as having nothing to do with the condition. Herter, Moench, Kahn, and Torrey, and others, including myself, believe that the Welch bacillus is the most probable causal organism, for the following reasons:—

(1) While all these groups are greatly increased in numbers, *B. welchii* shows by far the largest increase.

(2) *B. welchii* is one of the most powerful hæmolytic agents known. The streptococcus found in pernicious anæmia, as well as in healthy subjects, is an enterococcus, and is never, in my experience, hæmolytic. The same applies to the colon bacilli. The majority are non-hæmolytic, while some show a weak hæmolytic action quite incomparable to that of *B. welchii*.

(3) On experimental evidence.

(*a*) B. S. Cornell injected[10] sublethal doses of *B. welchii* into the tip of the spleen of rabbits, and produced in every case an anæmia varying from a mild chronic condition to a very acute severe anæmia. The anæmia was similar in every way to that found in pernicious anæmia. The injection of hæmolytic streptococci or *B. coli* failed to produce an anæmia.

(*b*) Kahn and Torrey[8] injected monkeys intravenously with Welch toxin, and produced all the blood changes which are considered typical of pernicious anæmia. After three weeks the monkey developed complete antitoxic immunity, further injection of toxin failing to produce any anæmia.

(*c*) Kahn and Torrey,[9] in order to overcome this immunity, gave monkeys Welch toxin by the mouth and found that the toxin was either destroyed or not absorbed through the normal mucous membrane. Accordingly they damaged the mucous membrane of the stomach of the monkeys with sodium fluoride and fed the monkeys through a stomach-tube with 20 c.cm. of fluid culture of *B. welchii* at weekly intervals. A very severe anæmia resulted, indistinguishable from pernicious anæmia. Moreover, no immunity resulted when the culture was given via the stomach. This is a very important point, and may explain the lack of reaction on the part of the tissues of patients suffering from pernicious anæmia.

The *B. welchii* produces a true exotoxin and hæmolysin. A qualitative examination of 30 different strains of *B. welchii* by Dr. J. M. Alston and myself both by the fermentation method of Simonds and by hæmolytic tests, shows that *B. welchii* from normal intestines and animals does not differ from *B. welchii* isolated from cases of pernicious anæmia. I agree with Moench, Kahn, and Torrey that if a Welch bacillus is the cause of pernicious anæmia, it is so not because it differs qualitatively from other Welch bacilli, but because of the great increase in numbers.

It is now well recognised by clinicians that the finding of achlorhydria is essential before a diagnosis of pernicious anæmia can be made. It has, however, never been settled whether the achlorhydria is produced by the factors which cause pernicious anæmia or whether it is the primary ætiological factor itself. I am in favour of the latter view, since it is well recognised that a proportion of achlorhydric

atients after many years develop pernicious anæmia; per cent. of apparently healthy individuals have en shown to have a complete lack of hydrochloric id in their stomachs, and yet only a very small action ever develop pernicious anæmia. Achlor-dric patients may continued for years or throughout e in reasonable health, provided that the liver is stroying the toxins absorbed from the small estine. As soon as the liver begins to fail, a chronic ain of symptoms is produced which, after many ars, may develop into pernicious anæmia.

Summary.

1. Clinical symptoms and pathological findings pport the view that pernicious anæmia is caused an absorption of toxin from the intestinal tract.

2. A bacteriological examination of both small d large intestine shows a non-proteolytic fermenta-e flora which is typical for pernicious anæmia. qualitative examination shows the organism to be ilar to those found in health. A quantitative amination shows an enormous increase of viable anisms, particularly in regard to *B. welchii*.

3. Biological and experimental evidence points to *B. welchii* as the most probable causal agent.

Conclusion.

Weighty evidence has accumulated that pernicious emia is due to the absorption of a toxin from the estinal tract, and the possibility that the *B. welchii* he ætiological agent is well worthy of the further estigations which are proceeding in this laboratory.

References.

1 THE LANCET, 1888, ii., 556, 608, and 654; 1900, i., 221; 1903, i., 367.
2 Medical Times, 1860, i., 181.
3 THE LANCET, 1877, ii., 77.
4 Amer. Jour. Med. Sc., xci., 498.
5 Jour. of Infect. Dis., 1925, xxxvii., 161–180.
6 Klin. Woch., 1922, i., 950; Ztsch. f. d. Ges. Exp. Med., 1923, xxxiv., 384.
7 Ergeb. d. inn. Med. u. Kinderh., 1922, xxi.,361; Klin. Woch., 1924, iii., 568.
8 Proc. Soc. Exp. Biology and Med., 1925, xxii., 8.
9 Ibid., 1927, xxiv., 413.
10 Jour. Infect. Dis. 1925, xxxvi., 508.

THE LOCAL ORIGIN OF THE INCREASED BACTERICIDAL POWER OF THE BLOOD FOLLOWING ULTRA-VIOLET IRRADIATION OF THE SKIN.

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It has been shown that irradiation of the skin with ra-violet rays increases the bactericidal power of th blood.[1] The conclusions from these experiments n cated that the optimum bactericidal response was ob ined by the application of the minimal erythema do e of light, and with irradiation of a surface area of kin equivalent to 20–30 sq. cm. per kg. weight.[2] Si e the blood of the general circulation increased its ba ericidal properties after irradiation of the skin, a eries of experiments was designed to determine wh ther this phenomenon originated at the site of irr diation, or whether it was due to some secondary re tion of the whole organism. Two series of experi-m its were carried out, so as to examine at the same tim the blood circulating through the area of irr diated skin and the blood of the general circulation. Th skin of the hind limb of the cat and the skin of the rabbit's ear were selected as having a blood-supply which could be readily isolated.

Irradiation of the Skin of the Hind Limb of the Cat.

It has been shown that irradiation of the abdominal skin of the cat with a quartz mercury-vapour lamp increases the bactericidal power of the shed defibrinated blood tested in vitro.[3] A similar experiment was carried out, but in this case the skin of the hind limb of a cat was irradiated. The result of this experiment can be followed from the following table :—

TABLE I.—*Average per cent. Hæmobactericidal Power of Sample of Sterile Defibrinated Blood collected from the Jugular Vein of a Cat and Tested with a Culture of Staphylococci.*

		Per cent.
(1) Before shaving right hind limb		74
(2) After shaving right hind limb		66
(3) ½ hour	after irradiation of limb with the M.V.L. for 15 min.	85
(4) 1 ,,		84
(5) 1½ hours		88
(6) 2 ,,		93
(7) 2½ ,,		93

A similar series of experiments were carried out with the hind limb tightly ligatured, so as to arrest the circulation directly after irradiation. No increase in the bactericidal power of the blood samples collected from the jugular vein was observed. The result of this experiment indicates that the increased bactericidal power following irradiation of the skin must be due to changes which develop with the circulation of the blood through the irradiated area. Experiments were therefore carried out to examine the blood which was flowing through the irradiated limb. A cat was anæsthetised with ether, and the hair of the hind limbs was shaved and the common femoral arteries and veins were dissected out. Excluding these vessels, each limb was tightly ligatured, so that blood was only entering the limb from the artery and returning by the vein. The right and left femoral veins were temporarily clamped so that blood samples could be collected, and a sample was taken from the jugular vein. The skin of the left hind limb was then irradiated with a mercury-vapour lamp (200 volts D.C., K.B.B. type) for 15 minutes, and at intervals blood samples were again collected from each of the veins. The bactericidal power of all the blood samples were tested against staphylococci in the usual way. The blood flowing through the irradiated limb had an increased bactericidal power after irradiation, while the blood samples from the non-irradiated limb and the jugular vein were unchanged.

TABLE II.—*Average per cent. Hæmobactericidal Power of Blood Samples collected from—*

	Jugular vein %.	Rt. F.V. % (non-irrad.)*	Lt. F.V. % (irrad.). †
After anæsthesia	80	—	—
Directly *before* irradiation of the skin of the left hind limb	85	83	87
Time after irradiation of the skin of the left hind limb :—			
20 minutes	88	82	99
60 ,,	80	81	96
95 ,,	78	81	100

* Right femoral vein (non-irradiated limb).
† Left femoral vein (irradiated limb.)

This experiment (Table II.) shows that the blood returning from the "irradiated limb" has an increased bactericidal power compared with the blood in the jugular vein and in the control limb which was treated in the same way, except that the skin was not irradiated.

Hæmobactericidal Changes following Irradiation of the Rabbit's Ear.

The hair was removed from the ear of a rabbit two days prior to each experiment by means of a depilatory (barium sulphide). Blood samples were collected from the lateral ear veins of both ears, and the inner and

[1] Colebrook, Eidinow, and Hill: Jour. Expt. Path., 1924, v., 4.

[2] THE LANCET, 1926, ii., 645.

[3] Hill and Eidinow: Practitioner, August, 1925.

outer surfaces of the right ear were then exposed to a mercury-vapour lamp, 6 in. distant, each surface for ten minutes. Blood samples were again collected from each ear at intervals after irradiation, and the bactericidal power of the blood samples collected were examined in the usual way. The results of these experiments showed that (1) the blood samples obtained from the irradiated ear had a higher bactericidal power than those from the non-irradiated ear; (2) the blood from the irradiated ear showed an increased bactericidal power in a shorter time than the "control" ear.

TABLE III.—*Average per cent. Hæmobactericidal Power (tested with Staphylococci) of—*

	Blood samples from lateral vein of the— Irrad. ear.	Non-irrad. ear.
Before irradiation	51%	52%
35 min. after irradiation ..	51%	48%
105 „ „ ..	90%	65%

As a variation of this experiment (Table III.), the right ear of a rabbit was irradiated and clamped at its base directly afterwards. Blood samples were collected from the left ear vein before and after the right ear was irradiated. The bactericidal power of all the blood samples tested remained unchanged during the whole experiment.

In another series of experiments the blood-supply to the ears was isolated so that the blood flowing through the ear and returning by the lateral veins of each ear could be examined. A rabbit was anæsthetised by intraperitoneal injection of urethrane. The central artery and veins of each ear were dissected, the central vein was ligatured, and a clamp was placed on the artery. By releasing the clamp on the artery samples of the blood flowing through each ear were obtained when required. The skin of the left ear was exposed to a mercury-vapour lamp, 8 in. distant, for 20 minutes. The animal was kept in the hot room at 37° C., as it was noticed that the ears otherwise became cold. Blood samples were collected from the irradiated and non-irradiated ears, and the bactericidal power of each sample was tested by the usual method. The result of these experiments can be followed by reference to Table IV.

TABLE IV.—*Average per cent. Hæmobactericidal Power (tested with Staphylococci) of—*

	Samples of blood collected from lateral vein of— Irrad. ear.	Non-irrad. ear.
Before irradiation	35%	38%
5 min. after irradiation ..	49%	34%
45 „ „ ..	90%	25%
55 „ „ ..	87%	38%
100 „ „ ..	71%	46%
180 „ „ ..	94%	47%

The results of these experiments indicate that when the skin is exposed to sources of ultra-violet rays a bactericidal effect is produced in the blood at the site of irradiation, and this is carried to the general circulation. Repeated experiments have given constant results. It has not been possible to isolate a definite substance with bactericidal power.

All experiments carried out in vitro with irradiated skin have so far failed to demonstrate a substance which will on injection into an animal increase the bactericidal action of the blood. There are, however, many observations which support the view that the irradiated skin is more resistant than normal skin to the inoculation of micro-organisms and to toxins (i.e., vaccinia, &c.).

Conclusion.

The results of these experiments indicate that the erythema dose of light applied to an area of skin increases the bactericidal properties of the blood flowing through the site of irradiation, and in this way the blood in the general circulation develops a greater bactericidal activity.

CHRONIC INFLUENZAL FIBROSIS OF THE LUNGS.*

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AFTER separating out from chronic diseases of t lungs those caused by tuberculosis, syphilis, and t inhalation of dust, there remains a considerable numb of cases in which the lungs show signs of permane damage in the form of fibrosis, more or less bronch dilatation, and possibly thickened pleura. These ca are diagnosed under various names: unresolv pneumonia, chronic pneumonia, interstitial pneumon fibroid lung, fibroid phthisis, &c. They have occurr much more frequently since the great epidemic influenza in 1918–19, and in my experience now fo the largest class of chronic lung disease, outnumber even tuberculosis. They are more often mistaken tuberculosis than any other condition. But althou they may occasionally be associated with a tubercul infection, they do not predispose to that disease, a usually run a separate and parallel course. T damage is a sequel to an acute infection which m have become extinct, but more often persists, c tinuing to irritate and cause more damage, so that have to deal with a progressive disease. Althou doubtless, many infections may lead to fibrosis, my opinion the commonest cause is infection with influenza bacillus. Chronic influenzal fibrosis not o forms the largest group, but in its typical form prese distinct features by which it can be recogni clinically, and separated from fibroses of other orig

Cases of fibrosis of the lung fall naturally into groups: (1) those arising in childhood, and (2) th arising in adult life. The former group has long b recognised. They begin usually within the first years of life, and follow an attack of bronc pneumonia, either simple or associated with whoop cough or measles, or they may follow repeated att of bronchitis.

A typical case is that of a child of 8 or 9, wh brought with the complaint that he has had a co and has not been really well since he had bron pneumonia at the age of 4. The cough tends to o in paroxysms, and is at its worst in the morning waking, when it may persist for half an hour or m and leave the child exhausted. Sometimes vomi occurs in the paroxysms. Slight exertion, excitem or talking may also bring on the cough. It is alv worse in the winter, but may persist through summer. Sputum is scanty, viscid, and hard to b up, unless there is bronchial dilatation, when more abundant. Occasionally there may be bloo it. On examination there is diminished expansion some flattening of the lower part of the chest on side. There is some alteration of resonance, var with the amount of fibrosis and thickened ple Breath sounds are diminished, but may be bron or cavernous when there is bronchiectasis. Nume râles are heard over the affected area, and perhaps a at the base of the opposite lung. Tonsils and ader have probably already been removed, but the may still be a mouth-breather, and muco-pus ca seen in the nasopharynx. The general health is impaired than might be expected from the cond of the lung, but the child is pale and a little unde average height and weight. At more or less freq intervals there are exacerbations with a ris temperature, and an increase in symptoms and s Râles become more numerous, and may lead diagnosis of broncho-pneumonia, but the conditi one of increased catarrh in a fibroid lung. S cases may become stationary or even lose their s and the children grow up well, and able to live no lives, but very often signs persist; the disease sl

* A post-graduate lecture given at the General Hos Birmingham.

progresses, the children are frequently unwell and have long periods of absence from school; well-marked signs of bronchiectasis develop with more abundant sputum, dyspnœa, and clubbing of the fingers. Life then becomes precarious, although they may struggle on to early adult life or even middle age.

It is, however, to the second group, those arising in adult life, that I wish especially to call attention, as the importance and frequency of the condition are not yet fully recognised. It is in this group that the etiological significance of the influenza bacillus becomes prominent. For this paper I have looked through the notes of 100 adult patients, mostly seen during the last three years, in all of whom signs of fibrosis of the lung were associated with the presence of influenza bacilli in the sputum. Whether or no Pfeiffer's bacillus is the cause of epidemic influenza, it is certainly the commonest associate of this disease, responsible for some of its peculiar features, and is a very persistent inhabitant of the damaged lungs so often seen as sequelæ. The bacteriology of the broncho-pneumonias of childhood and their sequelæ requires more investigation, but the influenza bacillus is frequently found in both the primary and secondary broncho-pneumonias, and fibrosis appears to be more frequent when this bacillus is present.

Ætiology.

Chronic influenzal fibrosis occurs equally in the sexes. Fifty-three cases were males and 47 females. It is found at all ages, but is most commonly seen between the ages of 30 and 55, 69 cases being within these limits. This refers to the ages when first seen by me and not to the age of onset, which was usually a few years earlier. These ages correspond with the fact that influenza in epidemic form has been particularly a disease of early adult life, and that we are now seeing the scars left by the epidemic of 1918 and subsequent years. Fibrosis seems less common during the 'teens, so that there is a gap between the fibroses of childhood and those of adults. This is partly bridged by cases produced in childhood and carried over into adult life.

The important point in the history of these cases is that, with few exceptions, patients could definitely trace back their trouble to some acute respiratory infection, and in at least 80 per cent. this event occurred in adult life. "I was quite well until I had influenzal pneumonia in 1918, and since then I have never been free from a cough." "I had influenza five years ago and have had several attacks since; these attacks are getting more severe, and I am away from business several weeks in the year." "I have had coughs and colds all my life, but they have been much worse since the influenza epidemic." "I had whooping-cough three years ago, when my child had it, and I have not been well since." These are typical histories.

In 25 cases there was a history of influenzal broncho-pneumonia; in 12 during the epidemic of 1918–19, and in the others during subsequent minor epidemics. In 17 others there was a history of severe influenza during epidemics. Twenty-one dated the onset back to a severe cold with bronchitis, not definitely called "influenzal," though associated facts suggest that some, if not all, of these were influenzal infections. Seven had suffered from bronchitis for years with repeated acute attacks. Five traced their illness back to whooping-cough in childhood, and one to whooping-cough three years before. One had pneumonia after measles, and one after scarlet fever in childhood. Six had had coughs and colds as long as they could remember, but had been much worse the last few years. One was gassed in the war, and in seven the first onset was with asthma. In four only was the onset insidious, and no definite time could be stated when the cough began.

Bacteriology.

In all these cases the influenza bacillus was grown from the sputum and in the majority it was also found in cultures from the nasopharynx. The growth was abundant but never pure. The commonest associated organisms were streptococci and *M. catarrhalis* in 94 and 70 per cent. respectively. The pneumococcus was only found in 24, which seems surprising when we remember the frequency with which it is found in acute diseases. Fibrosis, however, is rare after lobar pneumonia, which is a pure pneumococcal infection, and true lobar pneumonia has been infrequent in recent years as compared with the pneumonias caused by mixed infections. It would seem that the pneumococcus is not a very persistent organism in the lower respiratory tract. Friedländer's bacillus, *Micrococcus paratetragenus*, diphtheroids, and staphylococci were also found occasionally.

The influenza bacillus is not only a very persistent organism in the lung, but is very often found also in chronic infections of the nasal sinuses, so that in many cases there is a widespread infection of the whole respiratory tract. We do not know much about the frequency of infection with the influenza bacillus in inter-epidemic periods prior to 1918, but Pfeiffer in 1893 recognised that the influenza bacillus could exist for long periods in the sputum and that there were chronic forms of the disease. Ortner in 1902 found the bacillus in cases of chronic bronchitis, and since Lord's papers in 1902 and 1905 occasional articles on chronic influenza have appeared in American medical literature.

Symptoms and Signs.

On examination all the cases showed some signs of fibrosis of the lungs, varying from slight signs at one or both bases to a widespread bronchiolectasis or a massive fibrosis of one lobe or the whole of a lung. The physical signs naturally vary from case to case, but in an individual case they are remarkably persistent and, except during exacerbations, show little change.

The cases can roughly be classified into five groups for the convenience of description.

1. *Chronic Bronchiolectasis.*—This is the most characteristic and severe form. It is illustrated by the following cases:—

CASE 1.—A matron-in-chief of one of the army areas in France had influenzal broncho-pneumonia in January, 1917, and was seen by me in the following May. She then complained of great weakness and of becoming exhausted on slight effort. She had only a slight cough. She had lost weight from 8 st. 4 lb. to 6 st. 4 lb. during her illness, but had since gained and was 8 st. 7 lb. She looked thin and pale. The chest showed poor expansion and impaired resonance, especially over the upper lobes, but the striking sign was the presence of medium-sized moist râles over the whole of both lungs. The diagnosis of tuberculosis had been made, but tubercle bacilli had not been found in the sputum, and with tuberculosis of the extent shown by the physical signs a patient could not walk about and be free from fever. The signs were those of a general bronchiolectasis and the sputum contained large numbers of influenza bacilli. She had prolonged treatment with an autogenous vaccine, rest and change of air, and in February, 1918, her general condition had improved sufficiently to return to duty in France, although physical signs were little altered. She developed sciatica a year later and was finally invalided in April, 1919. The physical signs continued with little change until she died in November, 1924, after a long period of increasing dyspnœa.

CASE 2.—A woman, aged 39, consulted me for rheumatoid arthritis, which began after an attack of influenza six months before. The joints showed typical rheumatoid changes. There was no complaint of a cough, but she was slightly cyanosed and dyspnœic. All over both upper lobes were the same medium-sized moist râles. The sputum, which was scanty, contained numerous influenza bacilli with streptococci. She was under observation for three and a half years, but, whilst the joints improved, the signs in the lungs persisted unchanged, breathlessness gradually increased, and she died from heart failure during an acute exacerbation.

Such cases, in my experience, were rarely seen prior to 1918, and every case of general bronchiolectasis I have seen since that date has been associated with the influenza bacillus. The physical signs are very characteristic and even startling: abundant medium-sized moist râles heard over the whole or the greater part of both lungs of a patient who, whilst distinctly unwell, is yet able to walk about. I have several times made the diagnosis of influenzal bronchiolectasis from

the physical signs alone, and this has been confirmed by the sputum examination.

2. *Localised Bronchitis.*—This is really a slighter form of the first variety. Over some area of the lung, more often in a lower lobe than an upper, are constantly heard râles, fine or medium, crackling or bubbling, with some rhonchi. At times rhonchi may be heard all over the lungs from a general bronchitis, but when this subsides râles still persist over a definite area. X ray examination will show increased lung striæ spreading from the root towards the damaged area. The condition is one of fibrosis with some dilatation of the smaller tubes forming a chronic focus of infection which in acute exacerbations spreads to the rest of the lungs. Frequently there are other chronic foci of infection in the nose and throat.

3. These cases may in addition have *asthma.* In seven of my cases the first complaint was of asthma, and in eight others it became a prominent symptom later. The physical signs are like those of the previous group—localised râles in some portion of the lungs with sibilant rhonchi during asthmatic attacks. In between attacks the râles persist. Nasopharyngeal infection is almost invariably present.

4. *Massive fibrosis* is a less usual condition.

CASE 3.—A man, aged 45, was seen last February. He had influenza in 1923 and since then cough and sputum had been gradually increasing in amount and he had become very dyspnœic. He was regarded as asthmatic, but the dyspnœa was both inspiratory and expiratory. Breathing was noisy and almost stridulous. It was apparent that there was some gross obstruction to his bronchi, although at times there was probably some added spasm. At first the noisy breathing occurred only during sleep, but latterly it was present day and night, but varied in intensity from time to time. The sputum, which was not abundant, contained large numbers of influenza bacilli. There was lessened expansion of the left side of the chest; breath sounds were harsh with prolonged expiration. Râles were heard all over the left lung, especially at the base, and there were râles also at the base of the right lung. X rays showed a dense shadow at the root of the left lung with much striation throughout that lung and to a less extent in the right lung. He has improved under treatment and though still dyspnœic has lost the noisy breathing.

CASE 4.—A man of 50, tall, well built, and of not unhealthy appearance, has had a morning cough and sputum since an acute illness in 1917. From the history it is probable that this was influenza. There have been occasional febrile attacks with increase of cough and for the last four months he has complained of feeling unwell. The left side of the chest shows deficient expansion, the apex beat is in the axillary line, and the right lung has crossed beyond the sternum. The greater part of the left side is dull on percussion, with some resonance at the apex due to the trachea being drawn to the left. Breath sounds are bronchial at the apex from the same cause, but diminished or absent elsewhere. There are a few râles at the base. The sputum is usually viscid and scanty, but on several occasions there has been a profuse hæmoptysis. *B. influenzæ, M. catarrhalis,* and streptococci were isolated from his sputum. X rays showed a dense shadow over the whole of the left side of the chest with the mediastinum drawn to the left. Here thickened pleura appears to be associated with considerable fibrosis.

5. *Bronchiectasis,* of the text-book description, with abundant sputum, possibly foul-smelling, clubbing of the fingers, cyanosis, &c., is not often seen in these cases. It was present in four, but in each was of long duration and the history suggested that the fibrosis began in childhood. The influenza bacillus may have been a secondary invader.

Fibrosis in children is most common in the lower lobes and on the left side. In these adult cases there is not quite the same predilection for the bases. In 63 the changes were limited to the lower lobes, in 24 the upper lobes, and in 13 both upper and lower lobes. In 20 the right lung only was affected and in 19 the left lung only; in the remainder both lungs were affected to a varying extent; in 36 over limited areas at both bases, in 11 in both upper lobes, in 8 the whole of both lower lobes, in 1 small areas at both apices, and in 5 the condition was general in both lungs.

General Symptoms.

All the patients complained of fatigue and general weariness; they were often regarded as neurasthenic. Fits of depression were not infrequent and one patient committed suicide. Nearly all showed som signs of the effort syndrome, shortness of breath c slight exertion, palpitation, pain around the heart, an a quick pulse. The temperature was normal excep during acute exacerbations. In women an exaggera tion of the premenstrual wave was commonly seer Patients were often under weight, but not striking l so, and in a few cases, especially in women about th climacteric, there was obesity. As in other chroni infections thyroid disturbances were sometimes seen In the younger patients this was in the direction o hyperthyroidism and in one there was well-marke Graves's disease which began after an attack o influenza. Slight hypothyroidism was sometimes see in the older women. Paræsthesiæ, tingling an numbness in the hands and feet, cold and blu extremities, fibrositic pains, neuritis, and occasionall arthritis were all sometimes present. There appeare to be an abnormal reaction of the capillaries to col and a consequent proneness to rheumatic disorders.

I have already called attention to the frequency o associated infection of the nose and throat. Chron sinus infection, enlarged tonsils, polypi, and nas pharyngeal catarrh are recorded over and over agai My impression is that patients with a pre-existin unhealthy condition of the nose and throat are mo prone to suffer from chronic infection of the lun after broncho-pneumonia than normal patients, an this is especially so in children, but frequently th onset of the nasal infection is coincident with that the lungs.

An appreciable hæmorrhage occurred in seven, an in three this was at times alarming. Small strea and clots in the sputum were frequently seen. Th hæmoptysis naturally gave rise to fears of tuberculos It is not sufficiently realised that a large hæmorrha may occur in non-tuberculous fibrosis. When hæmo rhage occurs with absent or scanty physical sign tuberculosis is the most likely cause, but wh extensive physical signs are present, especially at th base, fibrosis with bronchial dilatation must considered as a possibility.

Pathology.

So far I have not obtained a post-mortem examin tion in a case which I have studied during life, an the exact condition of the lungs must be inferred fro the physical signs, the known lesions of influenza a our general knowledge of fibrosis following acu infections. In influenza the bronchioles are especia attacked, the alveoli being secondarily affected. Th bronchioles become blocked with secretion a desquamated cells. The mucous membrane is destroy and the bronchiolar wall infiltrated with inflammato cells and exudate, so that it becomes greatly thicken and extends into the surrounding lung. The next st is organisation of the inflammatory tissue and fibros Dilatation of the bronchioles may occur during th acute stage, or more gradually from the traction of ne formed peribronchial fibrous tissue. The final conditi is one of peribronchial fibrosis with dilatation varying extent. If the changes are slight and th infection becomes extinct the process may stop. I in the cases here under consideration the infecti persists, fibrosis increases, and we have a progress disease.

X ray examinations are very helpful. Whilst th physical signs are mainly those of catarrh, the X ra show the extent of permanent structural chan Although sometimes they show little, in spite o extensive physical signs, more often they reveal m extensive lesions than the physical signs suggest The most common condition is an increase of the re shadows and of the striæ extending outwards fr the roots. These extend particularly towards th base, but may go to an upper lobe or throughout th lung. The cardiophrenic angle may be obliterat and the outline of the diaphragm be irregular a angular, presumably from the traction of adhesio The normal reticular structure of the lung may be exaggerated or may have a honeycomb appearan Occasionally there is general dimming from masse fibrosis or thickened pleura. Lipiodol injections ha

furnished a means of determining more accurately the presence of bronchial dilatations.

Diagnosis.

The most important error in diagnosis is to mistake these cases for tuberculosis. Various statistics in recent years have shown that from 30 to 70 per cent. of cases diagnosed as tuberculous and sent to tuberculosis experts have proved to be non-tuberculous. Among these cases chronic influenzal fibrosis occupies a prominent place. The following points help in recognising the condition.

1. The history is of great importance. In tuberculosis the onset is usually insidious. In influenzal fibrosis the symptoms can be traced back to some acute illness. The history that the patient has not been well since an attack of broncho-pneumonia, influenza, or whooping-cough should at once lead to the suspicion that the disease is of a non-tuberculous nature. Influenza may, of course, stir up a latent tuberculosis, but this occurs less often than has been supposed. Confusion may also arise from mild attacks of fever due to tuberculous auto-inoculations being described as influenza.

2. Non-tuberculous cases usually show fair general health, in spite of signs in the lungs which, if they were due to tuberculosis, would be associated with considerable ill-health.

3. Tuberculosis has its sites of election, and in its progress follows a definite line of march. Influenzal fibrosis does not show the same tendency to spread to fresh areas of lung. The disease remains localised. Progress is marked by increased fibrosis or bronchial dilatation in the same area rather than a spread to other parts.

4. It is usually taught that tuberculous cavities are apical and bronchiectatic cavities basal, but this rule has many exceptions, and influenzal fibrosis quite commonly occurs in the upper lobes.

5. Repeated examinations of the sputum for tubercle bacilli must be made. If always negative the condition must be regarded as non-tuberculous, for we are not now dealing with cases simulating early tuberculosis, but with those showing well-marked signs in which tubercle bacilli would be found if present. The two diseases may, of course, be associated. In four of my cases both tuberculosis and influenza were present, but in each the tuberculosis was the primary condition, and influenza an added infection. I do not include here cases definitely tuberculous in which influenza bacilli are found as a secondary infection, but cases of fibrosis in which the diagnosis was in doubt. Systematic examination of the sputum should be made for influenza bacilli as well as for tubercle bacilli in all cases of chronic lung infection.

6. The characteristic physical sign in influenzal fibrosis is the medium-sized bubbling râle. In tuberculosis clicking and consonating râles are heard, but the distinction must not be pressed too far.

7. The X ray picture differs from that of tuberculosis. It may resemble that of so-called hilum phthisis, and, indeed, I consider that many cases described as hilum phthisis are in reality cases of non-tuberculous fibrosis. When massive fibrosis is present with considerable dullness, dense X ray shadows and hæmoptysis, the possibility of a malignant growth must be considered. Pain is an early symptom of malignant growth, and is absent with fibrosis. Dyspnœa is more marked and the general health more disturbed, but in some cases time alone will settle the diagnosis. The presence of influenza bacilli in the sputum is not conclusive, as there is some evidence that influenza predisposes to malignant growths of the lung. Bronchiectasis, bronchitis, and asthma may be component parts of the picture of influenzal fibrosis, and in all these cases the sputum must be examined for influenza bacilli.

Treatment.

Fibrous tissue once formed cannot be removed. The lung is permanently damaged. Treatment is therefore limited to attempts to improve the general health and to control the infection, with the object of preventing acute exacerbations, lessening cough and sputum, and impeding the progress of the disease. When patients can afford it, removal to a more equable, sunny climate will increase their comfort and prolong their lives. The nose and throat in many cases require efficient treatment to prevent foci of infection there from reinfecting the lungs. It is futile to expect improvement in the lungs when the upper respiratory tract is grossly infected. Treatment with autogenous vaccines is of great value, and I have seen considerable improvement after their use. In slight cases physical signs may disappear entirely. In more advanced cases the general health improves, cough and sputum become less, and exacerbations are controlled. As in other chronic infections the patient is "sensitised" and the initial dose of vaccine must be small, not exceeding one million. The dose is gradually increased, reactions being carefully avoided, and the treatment may have to be continued for 6 to 12 months. In spite of treatment the infection persists in many cases; the patients are "carriers," as is only to be expected in view of the permanent structural changes. In such cases relapses are likely to occur, and it is therefore wise to give a few prophylactic injections of vaccine each autumn and spring.

So far little attention has been paid to the prevention of fibrosis following acute infections. We do not know how long a broncho-pneumonia can remain unresolved and yet the lungs eventually return to normal, or at what stage the diagnosis of unresolved pneumonia must be changed for that of fibrosis. My own impression, after numerous X ray examinations, is that most cases of unresolved pneumonia are left with some permanent structural change, although there may be no symptoms and no catarrhal signs for long periods. It is necessary to make sure in every case of broncho-pneumonia that the condition has entirely cleared up before the patient passes from our care. If, after the temperature has fallen, the physical signs are slow in clearing up, efficient vaccine treatment, combined with such general measures as graduated rest, open air, the avoidance of fatigue, &c., would prevent many lungs from being permanently injured. We should be as anxious about the lung after acute diseases as we are about the heart in acute rheumatism.

Clinical and Laboratory Notes.

A CASE OF SPONTANEOUS PNEUMOTHORAX TREATED BY GAS REPLACEMENT.

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THE following case is of interest in showing the excellent results that may follow gas replacement in spontaneous pneumothorax:—

The patient, a grocer's assistant, male, aged 19, was admitted to the Winsley Sanatorium on June 17th, 1927. He had influenza last February and cough persisted. On June 4th he had a hæmoptysis of about half a pint. His mother has consumption with laryngeal involvement but has reacted very well to treatment at home, thus showing a good family resistance, which we thought to be in the patient's favour.

Condition on Admission.—General health poor; anæmic and rather hoarse. The physical signs in his chest showed involvement of both lobes of the left lung with moist sounds more numerous in the lower lobe. Pulse-rate, 88 morning, 96 evening; respirations, 20 morning, 20 evening. Bowels opened regularly, sputum ʒii. in 24 hours; T.B. +.

Progress.—For the first 18 days he ran a somewhat irregular temperature, never rising above 100° F. (oral), but this then subsided and he was allowed out of bed and put on graduated walks—namely, half an hour in the morning and afternoon. The laryngeal condition was treated by allowing "whispers only."

Onset of Spontaneous Pneumothorax.—On July 24th, at 4.30 P.M., during an attack of coughing, the patient was seized with a sudden acute pain in the left chest together with dyspnœa and faintness; he had to be assisted to bed. His temperature rose to 100° F. that evening and varied from 99° F. to 100° F. until the evening of July 28th, when for three days it varied from 102° F. to 103·4° F. The pulse at the same time was 120–146, respirations 40–44. He suffered from severe fits of coughing, causing much pain in the left chest, and from dyspnœa and a feeling of tightness which varied considerably from time to time.

The physical signs in the chest were those of a spontaneous pneumothorax with fluid. The heart was pushed well over, the apex being at the right margin of the sternum. Breath sounds were weak or absent on the left side. The percussion note was tympanitic above but dull at the base. Hippocratic succussion and the bruit d'Airain were readily obtained and he suffered from severe dyspnœa.

Early Treatment.—The patient was kept at absolute rest in bed with ordinary treatment for fever. Morphia (gr. ¼) was given and the left chest bound with adhesive strapping.

Gas Replacement.—On July 29th, owing to an exacerbation of the dyspnœa and other symptoms, a gas replacement (air) was done at 11·45 A.M. On introducing a pneumothorax needle into the second intercostal space in front, the pressures stood at ±0, +10. A second needle was now introduced into the ninth space behind and 480 c.cm. of clear straw-coloured fluid were withdrawn. At the same time 300 c.cm. of air were introduced through the first needle. At the conclusion of the operation the pressures stood at ±0, +10.

Further Progress.—From that time the patient's condition steadily improved. On August 7th a refill was performed and 400 c.cm. of air were introduced, this time into the fifth space in the mid-axillary line. The pressures before and after were respectively −6, −1, and +3, +9.

On August 11th his morning temperature, pulse, and respirations were respectively 97° F., 88, 24, and in the evening 98·4° F., 100, 26, showing a very marked improvement in his condition. On the 17th, the temperature being still quite normal, he was again refilled, the readings being +3, +4 : 350 c.cm. +7, +12.

Another refill on the 22nd : +3, +7 : 200 c.cm. +7, +12.
" " the 29th : +2, +6 : 200 c.cm. +6, +10.
" " Sept. 5th : +2, +6 : 350 c.cm. +9, +14.

Now he has ℥ii. sputum, bowels regular. Temperature, 97° F. morning, 98·2° F. evening; respirations, 20 morning, 22 evening; pulse, 86 morning, 104 evening.

The rationale of the treatment is to remove the fluid, which may become purulent with disastrous results, and at the same time to introduce sufficient air to prevent the intrapleural pressure falling to such a degree that the valvular opening in the lung reopens. With a negative or atmospheric pressure this might easily happen during a fit of coughing or any undue exertion. Reopening the communication between lung alveoli and pleural cavity of course greatly increases the risk of infection of the latter.

An interesting point in the technique is the decision as to what pressure to leave in the pleural cavity after the operation. In this case it was decided to leave the pressures the same as they were before removal of the fluid. This pressure presumably approximates to the pressure in the lung during a fit of coughing. Any pressure higher than this would cause unnecessary discomfort, and undue strain would be thrown on the other lung and on the heart. Any pressure lower than this would, as stated above, leave the patient open to the risk of re-establishment of the communication between lung and pleural cavity. The remarkable feature was the improvement in breathing, which was unexpected, considering that the pressures were left unaltered. The load on the diaphragm would, however, be reduced by the weight of 480 c.cm. of fluid, which would, of course, have been acting in addition to the pressure in the gas cavity. We are prepared, however, to believe that the operation had a great moral effect on the patient, as pure shock plays such a predominating rôle in the prognosis with spontaneous pneumothorax.

For the future it is proposed to treat the case as an ordinary artificial pneumothorax. One of the advantages of removing part of the fluid is that this hastens the absorption of the remaining fluid, as experience has shown. Once the fluid is all absorbed and the opening in the lung securely healed, the prognosis must become that of an ordinary artificial pneumothorax. Unfortunately, secure healing of the hole in the lung is difficult to attain.

The hazards of the operation are, in the first place, those inherent in ordinary artificial pneumothorax therapy, with an especial risk of infecting the fluid in the cavity. In the second place, there is the danger of letting the pressure fall too low and hence increasing the risk of infecting the cavity from within.

This patient was not X rayed on admission but the X ray now shows a good collapse and fluid up to the fourth rib. The throat, as so often occurs in pneumothorax cases, is gradually improving and his general all-round condition is quite satisfactory. Spontaneous pneumothorax is, no doubt, much commoner than we imagine (cf. one of the hypotheses of the pleural rings so frequently met with in ordinary X ray photographs), but is often probably of little but academic interest.

A CASE OF FOREIGN BODY INADVERTENTLY SWALLOWED.

By S. F. ALLISON, M.B., CH.B. EDIN., D.P.H. CAMB.,
ASSISTANT MEDICAL OFFICER, HAM GREEN HOSPITAL AND SANATORIUM, PILL, NEAR BRISTOL.

THE following case is worthy of note because a piece of razor blade was evacuated after traversing the whole alimentary canal with practically no untoward consequences.

On Sept. 1st, 1927, the patient, a man of 30, was admitted to Ham Green Hospital suffering from scarlet fever. He was well developed and, though certainly not mentally defective, was rather obtuse and disobedient. At 3 P.M. on Sept. 9th, while eating toffee, the patient swallowed a triangular piece of "safety-razor" blade, with a long side made by the cutting edge of the blade, and an acute angle making a sharp needle-like point.

The only immediate result was the expectoration of 2 oz. of blood, presumably from the mouth. The same evening a meal of cotton-wool and jam was administered, and the following morning (6 o'clock, Sept. 10th) a meal of thick oatmeal porridge. At 11 o'clock on the morning of the 10th an X ray photograph was taken. This photograph showed the blade almost halfway up the ascending colon, embedded centrally in its contents. By a curious coincidence another adventitious shadow cast in the left costal region led to further questioning, which elicited the information that some time previously a needle had penetrated his chest wall and had not been recovered. At 2 P.M. on Sept. 11th 1½ oz. of castor oil were given and the patient was kept under close observation. The sequence of events then was:—Sept. 11th: Bowels open 5 P.M., one stool and small quantity of wool; bowels open 8.30 P.M., normal stool. 12th: Bowels open 4 A.M., major quantity of wool and stool; bowels open 6.30 A.M., passed blade in stool, darkish in colour, but otherwise unaltered.

It is interesting that the blade was not passed with the wool. The patient now (Sept. 20th) appears to be making favourable progress, and suitable measures have been adopted to prevent a repetition of the experiment.

I am indebted to Dr. B. A. Peters for his permission to record the incident.

A NOTE ON SCARLET FEVER OF TOXIC TYPE.

By CYRIL BANKS, M.B., B.S. LOND., D.P.H. SHEFF
MEDICAL OFFICER OF HEALTH, COUNTY BOROUGH OF HALIFAX.

THE text-books contain references to cases of scarlet fever of a fulminating character which rapidly produces death, sometimes before the rash has appeared. The symptoms are vomiting and diarrhœa suggestive of the effects of an irritant poisoning. The reader is inclined to ask how such cases can be labelled as scarlet fever in the absence of the characteristic symptoms and signs of that disease; presumably the diagnosis has been made because other cases presenting the ordinary signs of scarlet fever have occurred in such a way as to suggest relationship

between the two illnesses. It is therefore of some importance to place on record occurrences which support the view that scarlet fever does occasionally produce the symptoms referred to, and cause death before the appearance of a rash. Here is such a case :—

On the evening of Sept. 12th, 1927, Dr. E. W. S. Hughes, of Halifax, was called to see a girl, 5 years of age, who had been taken suddenly ill during the day with much vomiting and diarrhœa. She was collapsed and semi-conscious. Next morning she died. Naturally Dr. Hughes suspected poisoning by food, but an inquiry into the dietary revealed nothing suspicious, except that shortly before becoming ill she had eaten an apple ; other apples from the same batch were therefore examined by the borough analyst but no arsenic was found. The coroner ordered a post-mortem examination, and the stomach and intestines were submitted to Dr. F. W. Eurich, of Bradford, for bacteriological examination, but he reported that there were no organisms present which would account for the child's symptoms.

The day after the girl died her brother was taken ill, and three days later he was admitted to the fever hospital suffering from scarlet fever, mild in type but definite in nature, and of normal course. Hearing of the earlier occurrence I was able to suggest to Dr. Hughes that the first case was one of toxic scarlet fever of fulminating character as described in the text-books but rarely seen ; this explanation of the death was given to the coroner and accepted.

It is impossible to prove any real relationship between the two illnesses, but the occurrence is regarded as worth recording.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF EPIDEMIOLOGY.

AT a meeting of this Section held on Oct. 28th Dr. S. MONCKTON COPEMAN, F.R.S., the President, in the chair, Dr. E. W. GOODALL read a paper on the

Epidemic Constitution.

In recent years, he said, there had been a revival of an old doctrine which had seemed to have died out of this country about the middle of the last century. It had never been seriously discussed at any of the Epidemiological Society's meetings, though reference was made to it by Inspector-General Robert Lawson, who was President of that body, in 1863 and again in 1874. Apparently Sir Thomas Watson adhered to it in 1871. Dr. F. T. Roberts, however, referred to it only to characterise it as a mere hypothesis. In 1884 Dr. J. S. Bristow brought it into his consideration of predisposing causes of diseases, and definitely rejected Sydenham's idea that the constitution was able to impress its characters on diseases concurrent with the principal epidemic disease. But he added that admittedly there was something remarkable about the way in which diseases—contagious, zymotic, simply inflammatory—became prevalent in a high degree over wide areas. Dr. Goodall said this was the last reference to the epidemic constitution which he could find in the literature of this country, but in France the idea seemed to have survived until the year 1896. Perhaps the chief cause for the decay of the doctrine in Britain was the growth of belief in the germ theory of infectious diseases, a subsidiary reason being that Government and official investigators did not favour it. Now, however, in the annual report of the chief medical officer of the Ministry of Health for 1925 there seemed to have been acceptance, in regard to influenza, of the "epidemic constitution" as a fact. In view of this it was of interest to inquire what was meant by the epidemic constitution. Hippocrates was said to have ascribed epidemics to something divine, as due to some unknown and inexplicable cause, but there seemed no good reason for attributing such a view to him. Among the natural causes of many diseases weather conditions were of the first importance. Hence arose the doctrine of the "constitution"—i.e., the doctrine of the season. In 1546 Fracastor provided another instrument for research into the causes of epidemics, when he clearly explained the modes by which infection could be spread. He applied the doctrine of contagion, the essence of which he believed to be a living organism, to explain certain diseases which were epidemic.

Sydenham divided the prevalent epidemic diseases into two groups: "the stationary," and the "intercurrent" or "sporadic" fevers. The former was the more important group. His intercurrent fevers were dependent upon more or less obvious causes, such as the temperature of the air, the rainfall, and the prevalence of certain winds. The stationary fevers depended upon "the epidemic constitution"—in other words, the constitution of the atmosphere. The duration of the stationary fever was said to be variable. Sydenham in his time recognised seven "constitutions"—those of the intermittent fevers, plague, small-pox, dysentery, comatose fever, depuratory fever, and continued fever. It seemed to the writer, however, impossible to find out exactly what Sydenham meant by the term "epidemic constitution"; it was a vague something over and above the more or less obvious causes of disease, whose presence was necessary before there could be an epidemic. For example, sporadic cases of plague might occur from time to time, but unless a pestilential constitution of the air arose there would be no epidemic of plague.

Dr. Goodall said he had had 40 years' experience of epidemic diseases—i.e., diseases in which the phenomenon should especially be manifest—and practically all of it had been in London, so that his experience had not been subject to the disturbing influences of change of locality. Among the cases admitted to the North-West London Hospital at Hampstead during the winter of 1924 and the following spring, influenza was the stationary fever of the period ; whooping-cough, scarlet fever, diphtheria, mumps, rubella, and chicken-pox were the intercurrents amongst the infectious diseases. He found no evidence whatever that these last-mentioned diseases bore any trace of influenza, and that had also been the experience of former years. He was not a believer in the doctrine of the epidemic constitution as set forth by Sydenham and the revivalists. He was prepared to substitute alternative teaching.

The first question which should be asked by those who took up the study of epidemiology was, Why were there epidemics at all ? He would answer that the epidemics were the expression of the warfare ever going on between human beings and animals on the one hand and micro-organisms on the other. If there were no micro-organisms there would be no epidemics of those diseases which had a microbic cause. The epidemiologist had to consider not only the human being and his surroundings, but also the micro-organisms and their surroundings. The genesis of an epidemic did not depend on one single cause, scarcely upon one outstanding cause aided by minor causes. Even the presence of micro-organisms was not necessarily the principal factor in the combination of events which brought about an epidemic. An epidemic was the result of the interplay of several factors, the kind and number of which varied for each disease. Serum sickness, for example, did not always attack the same proportion of those who were injected with the serum ; at one time nearly all the injected suffered from the sickness, while at another time most of them escaped. And the symptoms of this sickness varied from time to time too, for the rash was not the same in all collections of cases. These variations had now been found to be due partly to the ages of the patients who were treated with the serum, partly to the source of the serum (the animal from which it had been obtained), partly to the dosage, partly to whether or not it had been subjected to a special chemical treatment.

Dr. Peters had defined "epidemic potential" as being the head of power for epidemic spread present at any particular stage of the epidemic, as gauged by the intensity of the infectivity over the lowness of the susceptibility of the population. There was need for a term which would express the pre-epidemic phase. "Epidemic constitution" as a term in epidemiology should, he considered, be discontinued, as its use tended to conjure up in the mind a vague and mysterious phantom. He pleaded for the adoption of Dr. Peters's term "epidemic potential," giving to that the extended meaning suggested by Prof. Topley in his Milroy lectures of last year—namely, "the balance of interacting forces which tends towards the occurrence of an outbreak of disease."

Discussion.

Sir WILLIAM HAMER said it ought to be realised that there were three Sydenhams, representing different phases of his conception of various medical problems. It was the second Sydenham who took the world of medicine by storm. With regard to the attitude of the Ministry of Health, he asked Dr. Goodall to restudy the "setting" of that Ministry as indicated in its report for 1920. Sydenham's voice still spoke to the present generation, though his viewpoint was the antithesis of that held to-day. The task of his followers was to make those two opposites into a higher unity.

Prof. M. GREENWOOD said he felt much interest in Dr. Goodall's statement that the Ministry of Health had officially adopted the "epidemic constitution" in its C.M.O.'s report for 1925. But the only reference he could find in it to justify this allegation was the following: "As far as the 'epidemic constitution' of influenza is concerned, which has played so large a part in our records of mortality since 1889, there is little to be said"—surely a very chary adoption of the doctrine. The phrase "epidemic constitution" was, Prof. Greenwood considered, a very unfortunate one, and it would be a great advantage if it could be excluded from epidemiology. In regard to Sydenham's theoretical teaching, the speaker supported what Dr. Goodall said in the paper, as he had never been able to understand what Sydenham meant, and it was significant that though that authority made theoretical distinctions, he did not carry them into his treatment, for he used the same treatment for every constitution. In the views they had expressed, Hamer and his school were about 150 years ahead of their time; they were attempting to synthesise without the necessary information. What was needed was a study of epidemics on a smaller scale, of a succession of epidemiological phenomena in populations of animals which were shorter-lived than man; then knowledge so derived could perhaps be applied to successions of human epidemics.

Prof. W. W. C. TOPLEY expressed his general agreement with Dr. Goodall's views, and as to the great value of such descriptions as Sir William Hamer had given of the succession of diseases. At present the data available for a study of such problems did not enable one to go very far.

Dr. J. D. ROLLESTON remarked that the Plague of Athens, in his view, more nearly resembled typhus than any other disease. Thucydides said that the year of the plague was singularly free from all other diseases, and added that whatsoever diseases there were became converted into it. In connexion with such a recent epidemic as that of diphtheria in Paris in 1926–27, the French spoke of a constitutional tendency accounting for the intensity of the disease at that time. With regard to serum disease, cases of this were less frequent since the introduction of refined serum. This disease was best studied in connexion with diphtheria, owing to the universal treatment of it by serum. The more severe the attack of diphtheria, the less likely was serum disease to occur. And some parallel to this was seen in the case of small-pox.

MEDICO-LEGAL SOCIETY.

RECENT ADVANCES IN TOXICOLOGY AND FORENSIC MEDICINE.

Sir WILLIAM WILLCOX chose this subject for his presidential address to the Medico-Legal Society on Oct. 27th. Since its foundation in 1902, he said, the Society had served a useful purpose in discussing and criticising medico-legal discoveries, and such criticism was essential, because there must on no account be any risk of inaccuracy in the results attained by scientific tests used in legal investigations. Such tests must be without flaw. He then proceeded to consider some of the ways in which toxicology assisted the law.

Arsenic.—One of the greatest recent advances in the toxicology of arsenic had been the introduction of the electrolytic Marsh test by Prof. Thorpe in 1903. The detection of minute amounts of arsenic in the urine had enabled the rate of excretion of arsenic to be accurately determined; the detection and estimation of minute quantities in the hair and nails were also often of forensic value. Thus in the Armstrong case arsenic would have never been suspected as the cause of the death of Mrs. Armstrong (who had died about a year previously) if Major Armstrong had not attempted to poison his rival solicitor, Mr. Martin, by the same means. The discovery of arsenic as the cause of Mr. Martin's illness was due to Mr. John Webster's analysis of the urine passed by Mr. Martin three days after the poison had been taken. The advantage of toxicological research was here beautifully illustrated, for the knowledge of the rate at which arsenic was excreted made it possible to deduce that Mr. Martin must have been given a fatal dose.

A Government official in a tropical country consulted Sir William Willcox on account of an illness which had given rise to much difficulty of diagnosis. On Oct. 6th 1922, he was attacked with severe abdominal pain, vomiting and diarrhœa, watery stools containing some mucus being passed. He was very ill with these symptoms for three days and had a good deal of hiccup. On Oct. 9th circumoral herpes developed. The patient remained in hospital until the 30th, when he returned to duty. He now began to suffer from slight cramps in the feet, some numbness and feeling of coldness in the hands and feet, and some weakness of the legs. Marked thickening of the skin of palms and soles occurred, and the skin peeled off here in the middle of November. In consequence of these symptoms the patient came home in November. On Dec. 19th, 1922 slight anæsthesia to a light touch was found in the hands and feet, and there was some thickening of the skin of the palms and soles. The patient consented to some of his hair being removed for purposes of analysis, and Dr. Roche Lynch submitted this to the electrolytic Marsh Berzelius test. A considerable amount of arsenic was found in the hair, 1/22nd mg. in 3 g. of the hair. The diagnosis in this case was clearly that of acute arsenical poisoning on Oct. 6th 1922, and on question it was found that the patient had had considerable trouble on that date, on account of the misbehaviour of his native cook, who was discharged from service on the following day.

This case was of great interest, said the President, since knowledge of the mode of excretion of arsenic made it possible to diagnose acute arsenical poisoning as long as ten weeks after the poison had been administered.

Arsenobenzol Compounds.—Prof. Paul Ehrlich had discovered salvarsan in 1910 and neosalvarsan in 1912. Since then innumerable arsenobenzol derivatives had been introduced, but none of them, he thought, had proved more efficacious than the original salvarsan, though many were easier to administer. Ehrlich's discovery was one of the greatest therapeutic advances of modern times. Sometimes, however, the drugs acted as severe liver poisons, and occasionally they had even produced complete suppression of hepatic function. The close relationship between toxicology and medicine was well illustrated in the fact that the occurrence of these toxic effects led to the discovery and use of tests for determining liver function.

Liver Poisons.—Knowledge of these poisons had been greatly increased during the war. The use of tetrachlorethane as one of the constituents of a cellulose solvent for the varnish used on aeroplane wings had led in 1914 to the occurrence of a large number of cases of toxic jaundice. These had been first investigated by Sir Bernard Spilsbury and the speaker, and extensive degeneration of the liver had been found in fatal cases. A harmless substitute (amyl acetate) had eventually been discovered. Trinitrotoluene was also found to cause severe and often fatal toxic jaundice in addition to other effects such as dermatitis and anæmia. Dinitrobenzene, dinitrophenol, and picric acid gave rise to similar effects. The study of the toxicology of the liver poisons met with during the war had undoubtedly thrown much valuable light on our knowledge of the pathology of hepatic diseases in general. The characteristic feature of these poisons was that they produced degeneration and destruction of the hepatic cells resulting in a replacement fibrosis in the liver when recovery from the immediate effects of the poison occurred. "I have at the present time under my care at St. Mary's Hospital," said Sir William Willcox, "a patient suffering from ascites, the direct result of a cirrhosis of the liver caused by trinitrotoluene poisoning contracted in a munition factory in 1916, at which time an attack of acute toxic jaundice occurred."

Alkaloidal Tests and Methods of Detection.—The somewhat complicated processes of extraction described by Stas and improved upon by Otto and Dragendorff were still in use. The tendency of modern work had been to simplify them, and the late Sir Thomas Stevenson had introduced a practical modification of the Stas process. The great importance of carrying out all alkaloidal extractions at temperatures not exceeding blood heat was now fully realised. It was by using the utmost care in this respect in the Crippen case that hyoscine had been successfully extracted from viscera which had been buried for six months. The application of micro-chemical methods in the testing of alkaloidal extracts enabled minute amounts to be detected. For example, in the doping of horses, it was possible to obtain the alkaloid from the saliva obtained by placing a clean sponge in the horse's mouth.

The *lead treatment* for cancer, introduced by Prof. Blair Bell, was an example of the use of a powerful poison just within the limits of its toxic action. Much light had been thrown on the toxicology of lead by its use in this manner, and it was of interest to note that the effects of intravenous injections under proper control differed considerably from those of chronic lead poisoning. In the latter the cardio-vascular system, kidneys, and nervous system generally suffered much damage, whereas this was not specially noticeable in the treatment of cancer by intravenous lead.

New Drugs.—After referring to tobacco and alcohol, Sir William Willcox turned to the consideration of new drugs. There was a tendency at the present day, he said, to select for use new and vaunted drugs of foreign manufacture. Unfortunately these were often allowed to supersede the old and well-tried remedies. The English market was flooded with all kinds of hypnotic drugs of foreign manufacture which were advertised as harmless and free from dangerous toxic effects and from the risk of addiction. From 1905 to 1925 upwards of 257 cases of fatal poisoning had occurred from the barbituric acid group of drugs (veronal, dial, medinal, luminal, allonal, veramon, &c.), and there seemed to be no sign of diminution in these tragic occurrences. Numerous cases of addiction had been reported. It could not be too strongly emphasised that new organic drugs of hypnotic action should be used with great care and caution, and statements as to their harmless nature should not be accepted at their face value. New organic compounds should also be used with care, and it should be remembered that they had in all probability a definite action on the liver and nervous system which might have toxic effects. For example, the quinoline derivatives (atophan, &c.), which were of value as uric acid eliminants, might give rise to serious hepatic disturbance. He was informed on good authority that fine chemicals and proprietary remedies were imported into this country in enormous quantities from abroad, with little restriction as regards duty, whereas similar products of British manufacture were subjected to such hampering restrictions and duties as rendered their exportation impossible.

Other Potential Poisons.—Sir William Willcox went on to speak of the toxic effects of thallium acetate, carbon monoxide, and such physiological substances as pituitary extract and insulin, whose detection, for forensic purposes, might present some difficulty. The chemistry and toxicology of bacterial toxins was, he said, a field almost entirely unexplored. Aconitine (minimum fatal dose gr. 1/30th) was one of the most deadly of the vegetable alkaloidal poisons, but compared with some of the bacterial toxins its poisonous properties sank into insignificance. Thus a therapeutic dose of tuberculin was gr. 1/10,000,000, and the toxins of other organisms are probably much more potent.

Blood Stains.—Great advances had recently been made in the examination and detection of blood stains. The chemical, microscopic, and spectroscopic tests had been improved so that by micro-chemical methods the full tests could be carried out on a minute stain. These tests, however, only made it possible to say that the stain was blood, mammalian or otherwise. Uhlenhuth, Nuttall, and others (1902–05) had discovered and applied the precipitin test by which it was possible to determine the species of animal from which the blood was derived. The precipitin test for blood had been used by the Home Office scientific analysts since 1908, and had proved of great value. Since then it had become possible to say from the examination of a stain from what human group the blood was derived. Blood grouping had already been applied in a medico-legal case in this country by Dr. Walker Hill, and might even be used in cases of alleged paternity.

Wounds.—Sir Bernard Spilsbury's Lettsomian lectures (1925) on Wounds and other Injuries in their Medico-legal Aspect gave an admirable account of the advances made in this direction. Wounds from firearms had received great attention recently, and it had been found that the rifling and marks inside the barrel of a pistol left a definite impression on the bullet fired. By this means it was often possible to say whether a discharged bullet had or had not been fired from a particular pistol. On this subject Prof. Sydney Smith, of Cairo, had done valuable research.

Ultra-violet rays in forensic investigations promised to be of great value. The fluorescing properties of certain substances often served for their immediate identification; thus difference in the composition of sealing-waxes was often at once shown when viewed under ultra-violet light. Kinds of paper which appeared similar under ordinary light were often seen to be different under ultra-violet light.

In conclusion, said Sir William Willcox, it should be remembered that toxicology and forensic medicine were really part of general medicine and intimately interwoven with it. They should not be kept in watertight compartments, and too great a differentiation was retrograde.

BOSCOMBE HOSPITAL EXTENSION.—The Prince of Wales recently visited Boscombe Hospital. In the newly opened extension he named the men's ward after himself, and congratulated Dr. C. H. Vernon, of the medical staff, who won the King's prize at Bisley this year. The extensions provide 50 beds for men and 50 for women.

ABERGELE SANATORIUM.—The Ministry of Health has intimated to the Public Health Committee of Manchester its approval of the extension of the Abergele Tuberculosis Hospital; the new block will accommodate 210 children, and will cost £134,000. This extension is part of a larger scheme which will ultimately provide 520 beds.

INTERNATIONAL SOCIETY OF MEDICAL HYDROLOGY.

ANNUAL CONGRESS AT ROME, OCT. 12TH–16TH, 1927.

Prof. Umberto Gabbi, of the University of Parma, presided over the Congress this year, at which 14 nationalities were represented, with an attendance of 250 members and friends. The first three days, during which the Congress met in Rome, were divided between scientific business, public functions, and sight-seeing. At the outset an address of welcome was read in the Campidoglio by S. E. Pietro Fedele, Minister of Public Instruction, who was supported by Prince Potenziani, the Governor of Rome, the Dean of the Faculty of Medicine, and the Director-General of Public Health. Later in the day the members were received at the Palazzo Chigi by Signor Mussolini, and on the following day there was a reception at the Chamber of Deputies.

In the first discussion on the Use of Water in Acute Disease, Prof. GABBI (Parma) described his work on the nature of fever, which had led him to the conclusion that it must be considered rather in the nature of a grave danger to the organism than as nature's method of cure. He accordingly advocates hydrotherapy in preference to antipyretic drugs. Prof. ALOIS STRASSER (Vienna) dealt with the physiological and pathological principles underlying hydrotherapy, and described his attempts to estimate its value in promoting the excretion of toxins. While this rôle of the skin may have been overrated in the past, he regards the action of the skin on the immunobiological apparatus of the blood and hæmatopoietic system as a desirable field for research. Dr. FORTESCUE FOX (London) discussed and tabulated the acute conditions in which hydrotherapy is of proved value, referring in each case to the suitable technique. He divided the diseases he referred to into the acute febrile and acute *non*-febrile diseases, including in the latter category hæmorrhage into the stomach, brain or lung, migraine, Ménière's disease, and hyperthyroidism. Dr. C. E. SUNDELL (London) referred to the theory and technique of the "pyretic" treatment of acute rheumatism, basing his procedure on the assumption that acute rheumatism is not a "specific" disease in the sense that pneumonia and enteric fever are. A spirited discussion followed. Later, Prof. ASCOLI (Faculty of Medicine, Rome) read a paper on the baths of old Rome.

Members of the Congress were taken by special train to Montecatini, a watering-place situated between Florence and Pisa, well known formerly to English visitors, where they were received by Prof. QUEIROLO (Pisa), the honorary bath director. Papers were read on the biological action and therapeutic indications for thermo-mineral baths. Prof. VALENTI (Milan) considered that no single theory can account for the action of the various waters, since it is probable, he thinks, that the colloidal content may exert a fermentative action, whilst the absorption of gases, the contact action of saline particles and consequent ionic charges, have all to be taken into account. Prof. MARFORI (Naples) next spoke on the relation between the physico-chemical characters of various waters and their biological effect; this he has studied extensively in rabbits and dogs, finding certain constant modifications in the blood which depend on the tonicity of the saline employed. Dr. J. B. BURT (Buxton) gave an interesting paper on the differences between the action of thermal mineral waters and that of the simple hot bath, showing how the reactions differ in three essential characteristics—therapeutic effect, "bath reaction," and thermal debility. He discussed the causes for the differences observed, and put forward a plea for radio-activity as a possible explanation. He stressed the therapeutic importance of the skin, which, as he said, regulates the relations of the body with the outside world. He also compared the action of radio-active thermal waters with that of the ultra-violet rays.

On the next day the discussion was continued, and a paper was read by Prof. CHASSEVANT (Algiers) on the Electrical Phenomena of Medicinal Waters. He said that a medicinal water consists in a complex material held in a dispersing medium. The dissolved and suspended elements can be isolated and analysed, but their actual state can only be determined by estimating their physical conditions, amongst which electrical phenomena are pre-eminent. These methods render it possible to prepare a scale of ionisation, which is of considerable value in estimating the therapeutic activity of mineral waters. Mr. JOSEPH RACE (Buxton) discussed electrical phenomena under four headings—those of electrical conductivity, colloidal charge, hydrogen-ion concentration, and radio-activity. He explained the importance of each, and gave the results of recent attempts made in Buxton in connexion with the conservation of radio-activity in water. Dr. JUDD LEWIS (London and Tübingen) then put forward certain proposals in connexion with the adoption of international standards of measurement. He pleaded for agreement as to the manner of determining and expressing experimental data and for the presentation of these data to the physician in an acceptable and easily applicable form—e.g., the expression of the mineral content of a water as grains per 100 c.cm., this amount being equivalent to about half a tumblerful, and therefore a practical measurement from the point of view of the physician. A special committee was appointed by the society to deal with the matter more fully. The next paper, by Dr. PAUL FERREY-ROLLES (La Bourboule), dealt with the antitoxic and anaphylactic phenomena observed in connexion with medicinal waters. He showed that the natural immunity of animals may be raised, and quoted the belief of Billard that "every poison of organic origin can be rendered inactive by some water."

The final meeting-place of the Congress was Salsomaggiore, near Parma. Here the waters are subjected to several "processes" prior to being delivered to the baths, in contravention of the dictum of a distinguished hydrologist to the effect: "Mineral water, to be efficacious therapeutically, must be used in the state in which it leaves the earth, without being in any way modified chemically, and with as little difference in temperature as is possible." In Salsomaggiore salt is extracted on a commercial scale, as is iodine, whilst the petroleum content of the water, which is removed at the well-mouth, is sufficient to light the town. Prof. ZOIA (Milan), who opened the proceedings, gave, however, some striking instances of the beneficial effects of these waters in cases of chronic inflammation with exudation, in which he was borne out by the PRESIDENT. In particular he referred to the use of the dry salt inhalation, a method which is in advance of the ordinary vapour inhalation, and which is not used in England. In the afternoon a paper was read by Dr. A. MOUGEOT (Royat) on the action of waters on ferments and micro-organisms, during the course of which he showed that many medicinal waters were capable of sustaining the life of isolated cells, the cells chiefly used being red blood cells and spermatozoa, whilst sulphur water can be shown to have a marked bactericidal effect. The secretion of soluble ferments, which is a function of all cells, may be stimulated or inhibited by waters, whilst bicarbonate and sulphur waters have both a direct and indirect zymostheni action for amylases and oxydases. This zymostheni property is attributed to the electrolytes in the various waters. Mr. ARNOLD WOODMANSEY (Harrogate) terminated the proceedings of the Congress with a paper on the same subject, in which he stated that three standard types of organism (*B. coli*, *Staphylococcus aureus*, *Strept. fæcalis*) were submitted to the action of Harrogate sulphur waters under standardised conditions of technique; the bactericidal action was evident in every case, but the rate varied with the strength of water employed. Iron water of various

strengths was also employed and appeared to have a tendency to selective action, the colon bacillus and staphylococcus being more affected than the streptococcus.

Several members of the Congress visited Parma, where they were shown round the University and new hospital, where the President, Prof. Gabbi, occupies the chair of clinical medicine.

JAMES MACKENZIE INSTITUTE FOR CLINICAL RESEARCH.

ON Oct. 18th Prof. JOHN FRASER (Edinburgh) read a paper on

Superficial Pain as an Aid in the Differential Diagnosis of Abdominal Pain.

After alluding to the difficulty of accurately diagnosing many abdominal conditions, he pointed out that superficial pain in one or more of its manifestations might offer great assistance. He dealt particularly with two manifestations of superficial pain: (1) hyperalgesia or hyperæsthesia, and (2) referred pain. Hyperæsthesia and hyperalgesia were explained as depending upon an irritability of certain spinal areas, the irritability having arisen as the result of certain afferent abnormal stimuli transmitted from the deranged viscus. The reception of a second somatic afferent impulse from the superficies corresponding to the excited spinal segments was apt to be magnified or altered so as to be represented to the sensorium as a hyperalgesia or a hyperæsthesia. Prof. Fraser found the most striking manifestation of the sign in connexion with infection of the gall-bladder and with appendicitis, in which it had been found in 58 per cent. of cases. The distribution was remarkably constant—namely, over the area described as Sherren's triangle, the distribution of the tenth and eleventh dorsal nerves. A great variety of factors might explain the incidence of the sign, and there was evidence that the responsible stimulus arose early in the pathological sequence, and that it might consist of stimulation of the mucous surface of the affected organ. Some of the most distinctive records arose from cases in which there were threadworms and concretions in the appendix. In gall-bladder disease the sign was more likely to be associated with small mobile stones than with a single large fixed stone.

The explanation of referred pain commonly accepted, said Prof. Fraser, was the projection to the surface by a disturbed sensorium of stimuli originally recorded as afferent impulses from a disturbed viscus. Apparent referred pain was more constantly present than hyperalgesia and hyperæsthesia, but it was very difficult to distinguish true referred pain. The paper ended with a reference to the problem of local tenderness and the interpretation of muscular rigidity as a manifestation of underlying visceral disease.

MILK BY GLASS TANK.—The London Midland and Scottish Railway, in conjunction with a large wholesale milk firm, are bringing into use a glass-lined tank for the conveyance of milk. The tanks, fixed on steel undercarriages, are insulated against fluctuations in temperature, so that the milk will reach its destination in good condition. Each tank holds 3000 gallons, and does the work of three ordinary milk vans. Something like 100,000,000 gallons of milk are carried annually by the railway.

SHEFFIELD HOSPITALS.—During a visit to Sheffield last week in which he visited numerous Poor-law institutions, Mr. Chamberlain, the Minister of Health, opened the corporation's new maternity and child welfare centre and a new out-patient department at the Sheffield Royal Hospital. In his speech on the latter occasion he advocated closer coöperation between hospitals and the general practitioners who send patients to them. Last week also, Lord Cave, the Lord Chancellor, opened Norton Hall as an auxiliary of the Jessop Hospital, Sheffield.

Reviews and Notices of Books.

THEORY OF PERCEPTION.

An Introduction to the Theory of Perception. By Sir JOHN HERBERT PARSONS, C.B.E., D.Sc., F.R.C.S., F.R.S., Ophthalmic Surgeon, University College Hospital. Cambridge: University Press. 1927. Pp. 254. 18*s*.

ONE aim of the author is to bridge the gap between the neural and the psychological by considering the phenomena of perception. Ambitious as such an aim may appear, it is by no means either impracticable or elusive, for the reader is informed at the outset of the author's "creed"—viz., that the doctrine of emergent evolution, as set forth by Lloyd Morgan, provides the stepping-stones whereby to pass without discomfort or straining of effort from one stage to another over the general stream of vital activities. The postulate is to the effect that from the combinations of elements of a given series new things arise of a different order, not to be foreseen by contemplation only of the original constituents of the combinations. Applying the hypothesis to the problem before him, Sir John Parsons can discover no hiatus as between the emergence of life at a given stage in evolution from matter, and the emergence of consciousness still later. Indeed, his problem is facilitated by discussion of what exactly is implied in the terms "consciousness" and "perception." For, clearly, he is inclined to see in stimulation of the simple receptor mechanisms of the lowliest organism the emergence of a state of "awareness" of a change in the environment, and in the tingeing of this awareness with an affective and cognitive element, however minimal, the emergence of something comparable to a perceiving consciousness. Thus even at the level of reflex activity are introduced traces of the sentience and the conation of the animal who, advanced in the scale is admittedly furnished with mechanisms the functions of which are associated with processes commonly called psychical. Once such suppositions are accepted the way is smooth; from this germ of response to stimulus the final flower of ideation and conceptual consciousness springs and reaches maturity.

The general hypothesis thus outlined is supported by a wealth of data drawn from various fields of biological and neural activity and illustrated by apt comparisons. From it the author passes to a study of the afferent nervous system viewed directly and comparatively, in particular of the systems of common sensibility and of vision. This study is well done, although from the standpoint of neurology certain statements relied on by the author in support of his theory might be traversed. He evidently accepts evidence suggesting the existence of a dual sensory system, but his conception of it is that neither of Head nor of Foerster. He distinguishes a dyscritic or primitive stage of little differentiation and little discrimination from an epicritic stage which permits of differentiation; one system persists alongside the other in most of the senses even of the highest animals. Pain, however, according to Sir John Parsons, exhibits no duality, and its mechanisms are not represented in the cortex. Not a little clinical and other evidence might be advanced against the view that the thalamus is a *terminus ad quem* of the primitive sensory system, and that in no circumstances can pain experience be cortical.

Other considerable sections of the volume are concerned with what appear to be side-issues, for instance, investigation of posture and attitude, and morphological descriptions of the comparative anatomy of the midbrain and basal ganglia. The final sections, on the visual system, take the reader back to the main thesis of the book and are conspicuously lucid even if highly technical. Incidentally discussion ranges over a number of minor if cognate questions arising out of perception in still other of the sense fields.

NEUROLOGICAL SEMIOLOGY.

Sémiologie des Affections du Système Nerveux. By Prof. J. DEJERINE. Paris: Masson et Cie. 1926. With 560 illustrations, many in colour, and three plates. Pp. 1219. Fr.190.

THE classical treatise on neurological semiology by the late Prof. J. Dejerine, long out of print, is often asked for. The present edition is an exact replica of the issue of 1914, that fine expression of the author's genius and labours. Glancing through its familiar pages again, we note how little, comparatively speaking, calls for modification, and are impressed once more with the clinico-pathological method of the French school and with its patent advantages. Perhaps its chief disadvantage is that it is weak in regard to the physiological interpretation of clinical syndromes; it legitimately associated symptoms with lesions, yet it rather fails to explain how the former must arise through mechanisms that are in action, not destroyed. Dead mechanisms are functionless.

A new generation is arising in neurology, and we commend to their interest this superb production, which those who have known Dejerine consider the work of a master.

PATHOGENESIS OF THE NEUROSES.

Das Neurosenproblem, vom lebenswissenschaftlichen Standpunkt aus. By Dr. EDGAR LEYSER, Privatdozent for Psychiatry and Neurology, Giessen. Berlin: S. Karger. 1927. Pp. 64. M.3.20.

THIS is a readable little essay on the pathogenesis of the neuroses, considered in a biological framework. Sensations, feelings, and fantasies are psychical processes which can enter the field of consciousness; the latter two in particular, representing as they do the undercurrents of emotion, are largely responsible for neurosis-formation, since in certain circumstances they may lead to a conflict between inclination and duty. Neurotic symptoms are in reality the outward expression of clashing feelings, and their prognosis depends on the fate or outcome of the rivalry. Treatment will prove efficacious if it is devoted to developing new emotional combinations, to checking and counteracting the old, and to establishing other aims in life. Thus will the wounds resulting from an antagonism of feeling-trends be healed.

AN INTRODUCTION TO NEUROLOGY.

Fourth edition, thoroughly revised. By C. JUDSON HERRICK, Professor of Neurology in the University of Chicago. London and Philadelphia: W. B. Saunders Company. 1927. Pp. 406. 12*s.* 6*d.*

POSSIBLY no book comparable in subject and in dimensions contains so much of the pure meat of neurological doctrine as does this modestly entitled "Introduction," which we have reviewed on previous occasions with due appreciation of its admirable qualities. Elementary enough for the tyro, it nevertheless adroitly manages to lead him by easy stages into deeper water without his ever becoming conscious of being out of his depth. Few writers on technical subjects exhibit such a desirable combination of knowledge and of skill, or art—whichever it be. Prof. Judson Herrick draws on zoology, anatomy and comparative anatomy, physiology, comparative physiology and psychology, with equal ease and directness, to present to his reader the nervous system as a working mechanism, from the lowest levels of reflex action to the highest complexities of behaviour.

A scholarly handling of wide-ranging material and a philosophic interpretation of diverse data combine to render this "Introduction" outstanding. If the student works from it and learns its principles no less than its facts he will indeed have gone a long way towards a scientific and practical knowledge of the most important system of the human frame.

A SYNOPSIS OF SURGERY.

Eighth edition. By ERNEST W. HEY GROVES, M.S., M.D., B.Sc. Lond., F.R.C.S. Eng., Surgeon to the Bristol General Hospital; Professor of Surgery, Bristol University. Bristol: John Wright and Sons, Ltd. 1927. Pp. 674. 17*s.* 6*d.*

WHEN the eighth edition of a book is called for there can be no question of its popularity and success in the past. With the inevitable increase in size and the changes necessitated by the advance of knowledge, it is not, however, always possible to preserve those characters which made such a strong appeal in the earlier editions. A careful examination of the volume before us shows no evidence of flagging interest on the part of the author, and every sign of careful revision and successful effort to maintain the original conception. The information contained in the synopsis, whilst condensed and tabulated to a degree, is reliable, up to date, and complete.

LIGHT TREATMENT IN SURGERY.

By Dr. O. BERNHARD (St. Moritz). Translated from the German by R. KING BROWN, B.A., M.D., D.P.H., Medical Officer of Health, Bermondsey; Lecturer in Public Health, Guy's Hospital Medical School. London: Edward Arnold and Co. 1927. Pp. 317. 21*s.*

IN this book justice is at last done to a pioneer of heliotherapy. For more than 30 years Dr. Bernhard has been applying the good sunshine of the Engadin in his surgical practice and the results are here set out in Dr. King Brown's excellent translation. The book opens with a historical review of light treatment, which reveals the author's familiarity with the classics, whilst a section on light biology gives a good account of the action of light on plants, bacteria, animals, and man, with many original observations. Discussing the part played by pigment, Dr. Bernhard states that it is his impression that patients who pigment best are cured with the greatest certainty and speed with the sun-bath. The analgesic effect of the sun's rays is stressed, and the interesting observation made that light directly stimulates peristalsis, as was seen on exposure of bowel during a laparotomy or of fistulous and prolapsed intestine.

The injurious effects of light are fully set out in the section on pathology. The term "sun-fever" is applied to the acute inflammation with great redness of the skin and rise of temperature which may follow an injudicious first exposure. Diseases due to sensitisation, endogenous and exogenous, are also dealt with. Following a description of sunlight therapy, there is a section on treatment with artificial light. The quartz lamp is used by the author when sunlight is not available. In the chapter on indications for sunlight treatment in surgery, Dr. Bernhard states that it was the effect of sunlight on a badly healing wound that caused him to adopt the same treatment in sinuses and tuberculous ulcers. As a result of the successes obtained he began to treat closed tuberculous lesions. Favourable results obtained with ulcers, burns, and frost-bite are recorded, also the closing of fæcal fistulæ. Skin-grafts laid on dry granulating surfaces and exposed to the sun adhered firmly in 15 minutes, requiring no dressing.

"It is in surgical tuberculosis," Dr. Bernhard says, "that the greatest triumphs of sunlight treatment are obtained." All sufferers from this condition, even if there is only one focus of disease, are regarded as tuberculous individuals, and conservative treatment, especially in children, is urged. In comparing 302 cases, exposed to fresh air only, with 1163 cases treated with sunlight, he states that the duration of the healing process is shortened and operative interference less frequently necessary in the irradiated cases, though a few remained refractory to heliotherapy. The technique used is important. A strong local actinic and thermic stimulation is aimed at, and therefore local irradiation leading to pigmenta-

tion precedes general light-bath treatment. Major operative measures were used chiefly when, for economic reasons, it was found necessary to hasten a cure. The author states that at the present time his operative work is largely restricted to punctures, injections of iodoform emulsions, small incisions, scrapings, and special osteotomies. Many photographs illustrate the good results which Dr. Bernhard has obtained.

MALIGNANT TUMOURS.

Die Klinik der Bösartigen Geschwülste. By Geh. Rat. Dr. P. ZWEIFEL and Geh. Med. Rat. Prof. Dr. E. PAYR. Vol. III. Leipzig: S. Hirzel. 1927. Pp. 650. M.76.

THIS volume of a comprehensive work gives an account of the clinical features of malignant disease of the breast, and of the female generative organs. Much knowledge is collected between its covers, systematically arranged in the usual efficient German fashion, and well illustrated, a number of the pictures being in colours. Surgical and other methods of treatment are all fully described, including good accounts of X ray and radium therapy. There are interesting chapters on the vaccine treatment of cancer and malignant disease in animals. Appended to each section is a useful list of relevant publications.

URINARY SURGERY.

Second edition. By WILLIAM KNOX IRWIN, M.D., F.R.C.S. Edin., Surgeon to Out-patients, St. Paul's Hospital for Genito-Urinary Diseases. London: Baillière, Tindall and Cox. 1927. Pp. 271. 10*s.* 6*d.*

THIS is an enlarged edition of the author's surgical urology and is a useful little book for the practitioner. The subject is approached from the point of view of the most prominent symptoms, and although this method of describing disease has many drawbacks, yet the call for a new edition shows that the author has made a success of it. A new feature of this edition is outline descriptions of operative procedures.

EVERY WOMAN A NURSE.

By EDITH NEWSOME. London: Humphrey Milford, Oxford University Press. 1927. Pp. 204. 3*s.* 6*d.*

THIS small book is a revision of one published in 1916, having additional chapters on hygiene of children, on simple remedies, and on first aid; it is specially prepared for use in the home, for societies and schools. The chapters are good and the remarks on bandages should be exceptionally helpful to amateurs in sick nursing. Many of the illustrations, however, are inappropriate to home treatment, and terms are sometimes used and instructions given which would not be comprehended by the untrained. More information might perhaps have been given about the care of incipient tuberculosis.

HYGIENE AND PUBLIC HEALTH.

A Treatise on Hygiene and Public Health. Sixth edition. By BIRENDRA NATH GHOSH, F.R.F.P.S. Glasg., Examiner in Hygiene and Pharmacology, University of Calcutta and State Medical Faculty of Bengal. Calcutta: Scientific Publishing Co. 1927. Pp. 667. 10*s.*

THE author of this book justly claims that its usefulness has been increased by thorough revision and the introduction of a number of new subjects. No discovery of importance in relation to the practice of preventive medicine fails to receive some reference, and a special chapter on diet in India has been added. The result is as complete a survey of the field of public health as can be expected in a book of this size. The unevenness characteristic of such efforts at revision is noticeable. For instance, a fairly adequate statement of the modern conception of ventilation in the chapter on air is followed in the succeeding chapter by the repetition of the old idea that the amount of air required for ventilation largely depends on the amount of impurities present; and the idea that "diseases like cholera, enteric fever, erysipelas, measles, scarlet fever, &c., are aggravated by sewer gas" is surely obsolete. Generally speaking, the book follows the established lines of English short text-books on hygiene and sanitation, and, although frequent reference is made to the problems peculiar to India, it can hardly be said that it conveys in true perspective a picture of the field of hygiene in that Empire. It is, however, well put together and indexed, and is as good a short book on Indian hygiene as we have seen.

THE NORMAL DIET.

By W. D. SANSUM, M.S., M.D., Director of the Potter Metabolic Clinic, Santa Barbara, California. London: Henry Kimpton. 1927. Pp. 136. 6*s.* 6*d.*

IN this book Dr. Sansum discusses the basic principles to be considered in the selection of a normal diet, and provides an extensive series of menus which fulfil the required conditions. To appreciate it fully the reader must be familiar with such things as Lima bean muffins, frozen apricots, Chiote, Swiss chard, and summer squash. But for the initiated the function of the book is fully discharged.

OPHTHALMOLOGY.

A Handbook of Ophthalmology. By HUMPHREY NEAME, F.R.C.S., Ophthalmic Surgeon, University College Hospital; and F. A. WILLIAMSON-NOBLE, F.R.C.S., Assistant Ophthalmic Surgeon, St. Mary's Hospital. London: J. and A. Churchill. With 12 plates containing 41 coloured illustrations and 194 text-figures. 1927. Pp. 312. 12*s.* 6*d.*

STUDENTS attending the practice of an eye hospital or working in the ophthalmic department of a general hospital will find in this work a reliable guide to the examination of the eye and to the great bulk of eye diseases they are likely to meet. No claim to originality is made by the authors, and for the most part the teaching is in accordance with that of larger works, such as Fuchs's text-book. The newer methods of perimetry and of slit-lamp examination are not included, nor are rare diseases or unusual operations. The descriptions of the principal operations performed on the eye are easy to follow. In the chapter on cataract the relative advantages of simple extraction, extraction with complete iridectomy, and extraction with peripheral iridectomy are well set out. The operation recommended in favourable cases is simple extraction, on the ground that there is no chance of the lens capsule getting entangled in the lips of the wound. The book forms a good groundwork for the student fresh to the subject, and the figures enhance the value of the text. One of the most valuable features is the inclusion of 40 coloured illustrations, mostly of fundus conditions, from Hamblin's collection, all drawn from life by expert artists.

JOURNALS.

ARCHIVES DE MÉDECINE ET DE PHARMACIE NAVALES. Vol. CXVII., No. 2.—The current number relates of antimalarial work recently done in Italy at Porto Torres, in the north-west of Sardinia, by Médecin (Surgeon-Lieut.) Dr. Cluzel, of the French Navy. Porto Torres has only 6000 inhabitants, but considerable hydro-electric works in its neighbourhood were projected and increased export trade was hoped for. But the 60 per cent. incidence of malaria stood in the way. So an experimental antimalaria station was established on the spot by the Central Committee in

Rome, with the coöperation of the International Health Board of the Rockefeller Foundation. It appeared at once there were no sufficient funds for large works, so merely "piccola bonifica" was attempted. The staff of the experimental station comprised a doctor and a nurse, who were on duty all the year, and a sanitary engineer and two workmen, who operated from May to November, seven months. The doctor, when cases came or were brought to him, recorded their splenic indices, hæmoglobin percentages, and their particular malarial infections, and prescribed treatment, the rule being, for adults (and children according to their ages) for six days, 25 gr. of quinine daily, for the next 14 days 12 gr. every day, and 10 gr. daily for 40 days thereafter; unless they were then parasite-free the course was repeated. Thanks in part to the nurse, who takes round quinine and hunts up undeclared cases, patients come for treatment very regularly. The doctor also studies the growth of larvæ (for the identification of species), examines mosquitoes to determine the frequency of their infection, notes the proportions of males and females captured in places (males live at the spot where bred, but females travel), does precipitin reactions to decide with what blood females are gorged, takes the pH of the water in pools (for light on breeding possibilities and hindrances), colours live mosquitoes for identification of distances flown before recapture, and examines dead larvæ for Paris green (seen in their digestive tube). The engineer's work extends over a circle of 3-kilometre radius round Porto Torres, mosquitoes being thought not to fly farther, and he has this area mapped in sectors, regularly visited, with the larva-pools, as well as the usual shelters for adult mosquitoes—houses and stables—marked. The great breeding place is in the slow stream Turitano, 3 feet deep and from 4 to 20 yards wide, on which the town is built. If there was to be no drainage or clearing done, oiling would seem to be needed, but on account of expense Paris green was substituted. Treatment of the water every eight days keeps it quite free, and preliminary weed clearing is unnecessary. After 24 hours the poisonous particles sink to the bottom where they are dealt with by micro-organisms, and the water is harmless to men and cattle. The results are that anopheles have disappeared from the 3-kilometre circle, 7 (not 360) fresh cases of malaria occurred in the summer of 1926, and the expense in 1925 was 7*d.* per inhabitant. Oiling would have cost more in material and labour; clearing of the river's course would have been necessary, the water would have been spoiled for cattle, and the result could hardly have been bettered. Dr. Cluzel's is a valuable and exhaustive paper.

THE WEST AFRICAN MEDICAL JOURNAL.—A new medical journal is to be published quarterly from Lagos at an annual subscription of 20*s.* The colonial editors are, for Gambia and Sierra Leone, the Director, Medical and Sanitary Service, Freetown; for the Gold Coast, the Director, Medical Research Institute, Accra; and for Nigeria, the Director, Medical Research Institute, Lagos. The first issue consists of 12 pages composed for the most part of original contributions and illustrated by one excellently reproduced photographic plate of four surgical cases by Dr. Clive Sharp. The new journal is ushered in favourably, for it has as a prototype the *Kenya and East African Journal*, which is already well established. The aims of the editors go beyond the recording of official statistics and staff changes; they intend the new organ to assist in the knitting together of the personnel of a widely scattered service, many of whom by reason of space are unknown to one another, and in the encouragement, as one of the editorial staff says, "of that spirit of patient research and inquiry, that critical faculty, that desire for advancement of knowledge of disease which are our heritage from our great master, Patrick Manson." The aim is to make the journal a medium for the free and frequent exchange of ideas between the members of the staff and also between medical practitioners. Success should follow a venture wisely conceived.

Reports and Analytical Records

WEINBERG'S SPECIAL NO. 1 SIZE TURKISH CIGARETTES.

(MESSRS. WEINBERG, 3, CARLISLE-STREET, LONDON, W.)

THE box examined contained 25 cigarettes each weighing 1·63 grm. (25·1 gr.); approximately 17 cigarettes weigh 1 oz. The paper of each cigarette weighed 0·74 gr. On analysis the following results were obtained:

Moisture	.. 14·52 per cent.
Total ash	.. 15·56 „ „
containing sand ..	.. 2·46 „ „
Nicotine	.. 0·97 „ „

The paper of these large cigarettes is of good quality. The Turkish tobacco used in their manufacture is of a high grade and quite free from stalk and midrib. The cigarettes burn evenly and are cool to the throat. The percentage of nicotine is distinctly low.

MINTIPS.

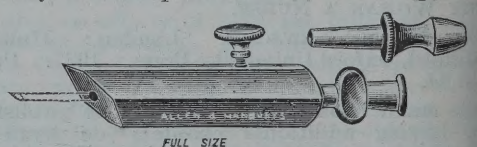
(MINTIPS, LTD., SLOUGH, BUCKS.)

MinTips is a "hard" sweet, opaque white in colour, convenient in size, and each piece is wrapped in waxed tissue paper. MinTips have a very pleasant refreshing mild flavour of peppermint. They dissolve slowly in the mouth, are not too sweet, and do not adhere to the palate. They have the effect of keeping the throat moist, and, in consequence, to some extent, are a preventive of thirst. Analysis reveals them as sweets of wholesomeness and purity.

New Inventions.

LONGITUDINAL SINUS WEDGE.

THE longitudinal sinus route in infants for intravenous injections or for the withdrawing of blood is frequently regarded as both dangerous and difficult. Various special needles and needle-holders have been devised to add to the safety of an extremely useful and easy little operation. The "wedge" here



FULL SIZE

shown is a modified form of various American appliances, but nothing of its kind (apart from specially devised needles) appears to have been hitherto available in this country, and most of the foreign "holders" seem too cumbersome or complicated. The use of the "wedge" with an ordinary needle is shown in the accompanying illustration. The length of needle projecting is judged roughly by pinching up the infant's scalp and thus estimating its thickness. The needle is introduced point backwards into the longitudinal sinus at the posterior angle of the anterior fontanelle, and the flat bevel edge rests on the bony margins at this point. For the withdrawal of blood or the introduction of small amounts of fluid an ordinary Record syringe can be attached to the needle, but where a saline transfusion apparatus is being used it is essential to have some sort of adapter, such as the one illustrated, facilitating connexion between rubber tubing and needle. In the case of transfusion blood should be allowed to escape from the needle before the adapter is fixed.

The "wedge" was first made over two years ago for use at the Hospital for Sick Children, Great Ormond-street, and is now obtainable from Messrs. Allen and Hanburys, 48, Wigmore-street, W.

ALAN MONCRIEFF, M.D., M.R.C.P. Lond.

THE LANCET.

LONDON, SATURDAY, NOVEMBER 5, 1927.

THE ACTION OF LIVER IN PERNICIOUS ANÆMIA.

A PAPER contributed to our present issue by Dr. J. H. ANDERSON and Dr. E. I. SPRIGGS draws attention again to the encouraging results attributed to the Minot-Murphy diet in the treatment of pernicious anæmia. Though these results raise a hope that we may at last have an effective weapon against this hitherto fatal disease, lapse of time alone can decide its full value, and it is well not only to remember the dramatic relapses and remissions natural to the condition, but to consider also our almost complete ignorance of the rationale of the new treatment. The therapeutic action of liver does not seem to be specific for pernicious anæmia, for it is also observed in the experimental secondary anæmias of animals and in sprue. The morbid states of sprue and Addisonian anæmia may in exceptional cases come to resemble each other so closely as to be indistinguishable, and of recent years the same ætiological agent, yeast, has been ascribed to both. Yet there can be little doubt that sprue is a clinical entity, and distinct from pernicious anæmia, in spite of the facts that the two conditions are accompanied by a glossitis of similar type, and that achylia, together with the symptoms (if not the physical signs) of spinal cord changes, and the characteristic blood picture of pernicious anæmia, may occur also in sprue. For whilst achylia, severe anæmia, and, to a lesser degree, changes in the cord, are almost constant in Addisonian anæmia, they occur only as somewhat exceptional accidents in the long drawn-out course of sprue. We know that various forms of anæmia due to internal hæmolysis, whether consecutive to the inhalation of benziuretted hydrogen gas, the harbouring of the *Dibothriocephalus latus* parasite, or the morbid syndrome of pernicious anæmia, may produce an identical blood picture, and it is evident that we cannot deduce from a similar blood state a common causative factor.

Liver soup has been used for many years in the treatment of sprue, as Dr. G. CARMICHAEL LOW and Dr. W. E. COOKE point out in the paper which appears on p. 960; but the use of liver for the cure of the anæmia has only received due recognition as a sequel to our acquaintance with its effect in pernicious anæmia. The fact that its effect is not specific suggests that the therapeutic substance it contains is not of the nature of an antibody to the infecting agent, but rather that it acts as a general stimulant to blood formation, as do iron and hæmoglobin, or possibly that normal liver supplies a substance or substances which in certain morbid states are deficient. Such conceptions are strengthened by the apparent necessity for continuing its administration indefinitely, since—up to a period of three years, at any rate—relapses may occur if the treatment is stopped. That liver acts by merely stimulating the marrow it is clear that its effect cannot be due to the iron or hæmoglobin which it contains, for a liver fraction has been separated which is said to be equally effective, although almost free from protein and iron. Further, in pernicious anæmia a constant and noteworthy effect of liver treatment is the rapid disappearance of the glossitis, and it is also claimed that the cord symptoms improve or fail to develop. It is difficult to correlate these effects either with the marrow-stimulant conception, or with the theory of G. H. WHIPPLE and F. ROBSCHEIT-ROBBINS that pernicious anæmia is a deficiency disorder due to lack of some essential in the stroma of the red cells, unless we assume that the damage to the cord and buccal lining is done by the products of hæmolysis rather than by the hæmolytic agent itself.

The evidence that internal hæmolysis is the main underlying factor in pernicious anæmia appears to be almost overwhelming. The widely accepted theory that the hæmolytic agent is derived from bacteria which gain entrance by the mouth to the intestine owing to the absence of an effective gastric juice, has been ardently supported on somewhat loose circumstantial evidence, but necessarily lacks the solid basis of direct proof. The main bacteriological agents implicated have been hæmolytic streptococci, yeasts, and the *Bacillus welchii*. The arguments in favour of the intestinal toxin theory are summarised on p. 961 by Dr. STANLEY DAVIDSON, who adduces evidence involving the *B. welchii*, and advances our conception of the ætiology of pernicious anæmia a stage further by supposing a breakdown in the detoxicating function of the liver. According to this view the chain of events would be achylia, increase of the intestinal flora, and, in particular, of *B. welchii*, followed in certain cases by liver failure and the unrestricted action of the toxin upon the blood. Such a conception has the advantage of simplicity, but it must be admitted that our knowledge of the detoxicating action of the liver is mainly confined to its effect upon phenol, and that even if the liver has the power of neutralising bacterial toxin derived from the intestine it is hard to believe that such action can be replaced by the administration of cooked liver by the mouth. It should be remembered, too, that eminent investigators are still producing evidence in favour of the belief that pernicious anæmia is a state of faulty blood construction and not a hæmolytic disorder. Should the liver treatment, as we hope, stand the test of time it will not only mark an advance in treatment, but should throw light upon the ætiology of an obscure malady. At the moment it appears difficult to reconcile its effect with our two main conceptions of the underlying cause of the disease, but further knowledge of the nature and mode of action of the liver substance may help us to decide which conception is the right one, unless indeed both are wrong.

THE DIAGNOSIS OF POLIOMYELITIS.

IT is never a good thing for a disease to be popularly known by the name of its final and least curable stage, and it is well that the term "poliomyelitis" is steadily replacing the older "infantile paralysis." Although cases without paralysis were described by C. S. CAVERLY, of Vermont, as long ago as 1894, and although absolute paralysis occurs in less than 20 per cent. of cases, yet the early diagnosis of the condition in its systemic and susceptible phase is a comparatively recent achievement. Indeed, Dr. F. M. R. WALSHE, in the discussion at the Medical Society of London last February, declared that "unless in the presence of an epidemic, or of well-developed general and meningeal reactions with the characteristic intermission between them, diagnosis before the appearance of paralysis is likely to remain exceptional."[1] If the disease is to be tackled successfully,

[1] THE LANCET, 1927, i., 327.

however, early and yet earlier diagnosis is essential, and it is encouraging to find a slightly more optimistic view taken by Dr. J. P. LEAKE in a recent number (Oct. 7th) of the *Public Health Reports* of the U.S. Public Health Service. His paper appears between a paragraph recording 4570 cases of poliomyelitis, reported in the United States between July 3rd and Oct. 1st, and a table showing the steady increase in its incidence from January to September of this year.

Dr. LEAKE follows Dr. WALSHE in classifying the stages into three: systemic, meningitic, and paralytic. He admits that diagnosis in the first phase can only be a matter of probability. He stresses two features which were noted in the Broadstairs outbreak—constipation and retention of urine. Other observers, however, have found diarrhœa more common than constipation. A curious contrast to many systemic infections is found in the rarity of convulsions, while the absence of herpes labialis helps to distinguish poliomyelitis from epidemic meningitis. Dr. LEAKE concludes that, if there is an epidemic in the neighbourhood, a tentative diagnosis of poliomyelitis is justified by fever, vomiting, constipation, drowsiness, and irritability, especially when these are combined with headache, transient flushing, abnormal sweating, and retention of urine. The usual moderate leucocytosis may be replaced by a leucopenia. With the onset of meningeal symptoms we are admittedly on firmer ground, and Dr. LEAKE maintains that systemic symptoms combined with pain or resistance on spinal flexion, local hyperæsthesia, and tremor, would be sufficient for a presumptive diagnosis of poliomyelitis in the absence of signs more indicative of some other disease. In common with most American observers, he relies on the pain and stiffening elicited by an attempt to lift the child with one arm under its flexed knees and the other under its neck. A very persistent symptom, in his experience, is popliteal pain, due to hypertonicity of the hamstring muscles. Examination of the cerebro-spinal fluid is of such value that 100 per cent. accurate diagnosis from it has been claimed. Dr. LEAKE, however, disagrees with Dr. JAMES COLLIER that lumbar puncture "does no harm,"[2] and regards the danger of subarachnoid hæmorrhage as so great in unskilled hands that he deprecates the operation as a means of diagnosis. History and thorough examination will, he says, afford quite as reliable an indication of the condition. The hyperæsthesia may be cutaneous, muscular or articular, and is apt to be mistaken for rheumatic pain. It is, however, unaccompanied by swelling, and involves areas corresponding to segments of the spinal cord. Anæsthesia is rare, and if present at all is local and inconspicuous. Tremor, brought out by muscular action or the extension of unsupported limbs, is characteristic, and unsteadiness in action and gait may amount to ataxia. In the irritative stage the reflexes are irregularly increased, and a diminution is the first sign of degenerative changes in the peripheral motor neuron. Even with the minor reflexes a constant discrepancy between the two sides is significant. The lumbar and epigastric reflexes should not be forgotten, as they may give a hint of incipient paralyses in the dorsal and abdominal muscles. The gluteal, scapular, pectoral, cremasteric, and plantar reflexes are also useful.

Dr. LEAKE gives some useful hints on the technique of examination, reminding the practitioner of the advisability of keeping a pain-test until the end with small children, and of the importance of obtaining confidence. Reflexes must be tested repeatedly, under the most favourable conditions, and may require reinforcement. The conventional patella-hammer is, he says, useless for eliciting deep reflexes, and a special one should be improvised from stout wire and two soft rubber erasers, one 2½ in. by ⅝ in. by ⅜ in., for small babies, and the other 2⅜ in. by 1¾ in. by ½ in. One end may be bevelled with a sharp knife to give precision. The knee-jerk should be elicited in the recumbent position, with the knee semi-extended at an angle of 120°; the doctor's hand on the thigh ascertains the response of the muscle. Half a wooden tongue-depressor, broken diagonally, is better than a pin for testing superficial reflexes. All the movements of the limbs should be tested repeatedly to detect lack of tonus and of resistive efforts, which may be very definite even in the tiny baby. The enthusiast must not forget, however, that in the acute stage the child's chief need is rest in bed, and to make a sick child walk across the room is to defeat the end in view. Usually the examination can be divided over several visits. In Dr. LEAKE's concluding words: "The diagnosis of poliomyelitis is not a simple matter, depending on a single factor or sign, but the whole history and physical examination must be taken into consideration; and when that is done, there are enough idiosyncrasies and predilections of the disease to enable a diagnosis to be made with as great certainty as is usual in the diagnosis of other diseases, even without what was formerly considered the essential feature of the malady—permanent paralysis."

[2] THE LANCET, 1927, i., 321.

RETIREMENTS IN THE PUBLIC HEALTH SERVICE.

Two medical officers of health have recently retired after long service in metropolitan boroughs.

Dr. H. R. KENWOOD became medical officer for Stoke Newington on Sept. 30th, 1894, after having held a similar position at Finchley. His 33 years' tenure of office gave ample scope to a gift of sound administration and the opportunity of pioneer work in several directions. Stoke Newington was the first metropolitan borough to provide (in 1900) for the voluntary notification of phthisis. By 1907, when child welfare centres were almost unknown, Dr. KENWOOD had established a centre in the borough and had enlisted the assistance of a body of voluntary workers. As the result of a series of local experiments Stoke Newington was the first sanitary authority in the country to use formaldehyde for the surface disinfection of rooms in lieu of sulphurous acid. In 1901, as the result of tests made on himself, Dr. KENWOOD took a strong line against the addition of chemical preservatives to food and succeeded in getting their use appreciably reduced in his area. Three years later he became Chadwick Professor of Hygiene in the University of London. During the war period, when he became one of the three civilian sanitary advisers to the Army Council, he was still able to continue his local public health work and proceeded to organise a creche with valuable results. His influence in the public health world extended far beyond the boundaries of his area, the administration of which, however, provided him with opportunities for keeping in touch with the everyday problems of sanitation and of maintaining a salutary sense of proportion in hygienic work. Prof. KENWOOD's term of service was honoured at a complimentary dinner given at the Connaught Rooms on Oct. 6th, when he was presented with an illuminated address, and in replying to the toast of his health remarked on the welcome growth in recent years of the community impulse towards health.

Dr. JOSEPH PRIESTLEY entered upon his public duties in Lambeth on June 27th, 1895, and relinquished them at the end of last month. He gained experience at Camberwell and Leicester before serving for 32 years as chief officer of the public health depart-

ment to one of the largest boroughs of the metropolis. Here he was successful in building up a satisfactory health unit. Not only did he supervise with extreme conscientiousness what is perhaps the most troublesome and difficult sanitary work of a metropolitan borough—namely, the housing of the people—and strive to the utmost to keep up a satisfactory standard, but he devoted much time and thought to the administration of the tuberculosis dispensaries. Owing to Dr. PRIESTLEY the public health equipment of Lambeth is singularly complete. There is a municipal maternity home, a municipal milk depôt, and a municipal bacteriological laboratory. All this work was achieved with a minimum amount of friction; he was esteemed a very courteous official by his Council. Of late years his reputation was enhanced by a piece of epidemiological work which has now become a classic—the tracing of a local outbreak of food poisoning in South London to a paratyphoid carrier. Dr. PRIESTLEY holds the highest position in the esteem of his public health colleagues, and for some years was elected one of the two hon. secretaries of the Society of Medical Officers of Health. He was honoured on Oct. 27th at the Lambeth Town Hall by a presentation from his fellow practitioners. On this occasion Dr. PRIESTLEY remarked upon the decrease during his term of office of the general death-rate in Lambeth from 19·5 to 11·5 and of the infantile mortality from 152 per 1000 births to 38·4, but he disclaimed credit and responsibility for the fall of the birth-rate during the same period from 31·9 to 24·1. "All I have been able to do," he said, "has been to counteract the bad effects of this lessening of the birth-rate by a correspondingly greater lessening of the mortality-rates, leaving a net balance to the good so far as Lambeth is concerned."

Annotations.

"Ne quid nimis."

THE ÆTIOLOGY OF MEASLES.

THE search for the causal agent of measles is still being actively pursued, and at the recent meeting of the American Medical Association William E. Cary and Lois H. Day, of Chicago, reported the isolation of a small green-producing, Gram-positive, short-chained streptococcus from the tonsillar secretion of 93 out of 98 patients who were in the early eruptive stage of the disease. The organism, they say,[1] grows well aerobically in 24 hours, producing a green surrounding zone three times the size of the colony. This green-producing coccus persists in the throat after the patient ceases to be contagious epidemiologically, but the type of colony which it produces changes definitely as the patient's temperature becomes normal. Berkefeld filtrates of throat washings, when injected into rabbits, produce a rise of temperature from 0·8–3° F., and a distinct rash is said to have been noted in one case. In one rabbit cardiac puncture yielded a pure culture of a green-producing diplococcus; in others a similar organism could be cultivated from the blood; whilst in 11 out of 21 cases the coccus was isolated from the conjunctival secretions. Large amounts (10 c.cm.) of whole-broth cultures of the organism injected intratracheally or intravenously cause a slight rise of temperature and a definite erythematous rash. Fermentation tests showed that acid production in salicin, while not invariably produced, is of value in differentiating the organism. Agglutination tests with the serum of patients convalescent from measles, and with strains of the green-producing diplococcus, have very indifferent results. Tests with the filtrates of broth cultures of the organism on the lines of the Dick reaction have not yielded consistent results.

In a discussion on the above results, Dr. W. H. Park, of New York, said that his experiments with the organisms isolated by Ruth Tunnicliff and by Ferry and Fisher, lead him to believe that these cocci were only concomitant organisms, and not the causal agents of measles. He thinks that measles is due to a real filtrable virus, and not to any organism of the size of the green-producing streptococcus. His experiments with Tunnicliff's toxin have not shown any distinctive difference in the cutaneous reactions of those who have had measles and those who have not. Dr. W. T. Harrison, of Washington, D.C., said that he had been working with Dr. R. Degkwitz in Pfaundler's clinic in Munich, and gave an interesting description of Degkwitz's recent work. Material from the nose and throat was inoculated into dilute human plasma and incubated overnight, and the culture was filtered through a Berkefeld N filter. The filtrate was inoculated into human blood plasma diluted 1 in 7, and rendered semi-solid by the addition of calcium chloride. Transfers to fresh medium were made every six days, sheep serum being added to the medium, and the proportion increased at each transfer, so that at the fourth subplant sheep serum alone was used. The green-producing diplococcus of Tunnicliff was used in alternate cultures as a symbiont. At the third transfer the Berkefeld filtrate of the culture was inoculated into monkeys which later developed febrile symptoms. The blood from these animals was inoculated into further monkeys, and the transmission was accomplished to the fourth generation. The serum of the recovered monkeys was used in protection experiments on susceptible children, and protection was conferred in every case. Normal monkey serum had no such effect.

There is still a bewildering array of micro-organisms of various sizes, each regarded as the causal agent of measles, and more work is needed before the actual incitant of the disease can be identified with certainty.

[1] Jour. Amer. Med. Assn., Oct. 8th.

THE EXPLOITS OF A CAVALRY FIELD AMBULANCE.

THE rapid advance of the cavalry which opened Lord Allenby's victorious campaign in Palestine in September, 1918, involved great difficulties for the field ambulances of the swiftly moving cavalry brigades, only met by the wise foresight of the commanding officers, and the devoted work of other ranks and followers. It is instructive to read, in the *Journal of the Royal Army Medical Corps* for September (p. 161), the account by Lieut.-Colonel H. F. Humphreys, M.C., of how all difficulties were successfully met. These must have been great where a combined (British and Indian) field ambulance was in question, with no I.M.S. officer, no European who could talk Hindustani, none who could understand the Egyptian camel drivers. The intended operations were not disclosed until Sept. 17th at Ramleh, when reorganisation had to be completed, necessary stores decided and drawn, and camels and remounts obtained, all within two anxious days. The unit was divided into a mobile (bearer and tent) section and another, less mobile, to be a divisional clearing station. The tent and bearer sections marched from Selmé at 6 A.M. on Sept. 19th to Beisan, doing the 90 miles in 38 hours, and arriving complete. The heroes of this march were the 24 donkeys which, carrying each an Indian follower, had themselves no one casualty, not even a sore back. On Sept. 25th the bearer section marched off across the Jordan with the brigade for Damascus through the desert. The tent section, left behind to evacuate sick and wounded to Haifa, followed next day, without guard or convoy, rejoining most creditably at Damascus on Oct. 2nd. But it is the camel convoy which gets the highest praise, 20 camels, their drivers all Egyptians, with but one British soldier, Private R. A. Gibbs, R.A.M.C., and he in command. The convoy marched by itself three days through the desert, without map, compass, guide, or guard or arms, among marauding Arabs and Turkish stragglers, and rejoined at Damascus on Oct. 4th. When supplies ran short Gibbs traded,

at the villages, discarded Turkish equipment he had collected, such as boots, and so got camel fodder, eggs and milk. He defended his convoy once with a Turkish rifle and ammunition he had picked up. We are glad to see he got the Military Medal. As Colonel Humphreys remarks, the responsibility that may fall in war on a private, R.A.M.C., requires they shall all be Class A men. An outburst of malaria began at Damascus about Oct. 3rd, and on 4th, 5th, and 6th 200 cases passed through the mobile section of the ambulance, which marched on and reached Baalbek on the 15th. It evacuated cases to Damascus till Oct. 12th, and thereafter to Beyrout. Altogether, though itself crippled with malaria, it dealt with 1307 casualties in October, 90 per cent. of them malarial. The less mobile section marched up by the Sea of Galilee, losing heavily by malaria, indeed two-thirds of its British personnel, the commanding officer (Captain S. R. K. Thomson) having to drive a wagon. In five weeks to Oct. 31st this section took in 1314 cases. It ultimately rejoined headquarters at Baalbek on Nov. 9th. Individuals as we have seen did well. When so many in a unit are exceptionally efficient much praise must be due to the leading of the commanding officer. Colonel Humphrey's story of the campaign is well worth reading.

THE CONCENTRATION OF HÆMOGLOBIN IN THE BLOOD.

IT has been well known for a long time that exposure to low oxygen pressures results in an increase in the quantity of red cells and hæmoglobin per unit volume of blood, and the observations of Haldane and Douglas on Pikes Peak showed that this high altitude polycythæmia was due, not to a concentration of the blood, but to the production of many new red corpuscles as a compensatory hypertrophy. It is not so clearly recognised that breathing atmospheres containing excess of oxygen leads to a diminution in the red cells and hæmoglobin. Doyon and Morel [1] showed long ago that rabbits kept in a caisson in compressed air for three weeks became anæmic, and Dr. J. A. Campbell in two recent papers [2] has produced more ample evidence. He worked with monkeys, rabbits, guinea-pigs, rats, and mice exposed to air containing about 50 per cent. oxygen at atmospheric pressure and found that the percentage of hæmoglobin fell by a quarter to a third—the details differing a good deal in the various experiments. The number of red cells per cubic millimetre and the percentage of hæmoglobin are, then, functions of the oxygen supply, and what we call the "normal" figures depend on the accident that most of us live in an atmosphere containing 21 per cent. of oxygen at a pressure of about 760 mm. of mercury. The "normal" hæmoglobinometer figure for people living high up in the Andes is perhaps 130 per cent. on the ordinary scale; if anyone could get deep enough into the earth to have the air pressure doubled or lived in some place where the air had twice the ordinary amount of oxygen, the "normal" figure would no doubt be 80 per cent. or thereabouts. The facts indeed make one wonder whether after all the environment we live in is as good as it might be. Hæmoglobin is not much use unless it goes round the body, and the trouble about sending a great deal of it round the body quickly enough is that the red cells in which it must be carried make the blood inconveniently viscous. The polycythæmia of high altitudes passes off quickly enough on returning to sea-level; the body does not like it because it throws more strain on the heart. Similarly, the polycythæmia produced by transfusion is soon corrected by arousing an active destruction of the red cells which the body can do without.

We judge therefore that the "normal" concentration of red cells is a compromise between the oxygen supply and the work of the heart; it presumably represents the least viscous fluid which will carry the minimum necessary amount of oxygen. And it would seem to follow that we should do better if our air contained 40 or 50 per cent. of oxygen instead of 21 per cent. Atmospheres of anything near pure oxygen are well known to be harmful if breathed for any length of time, but there is no evidence in Dr. Campbell's experiments or elsewhere that doubling the ordinary amount would do any harm. Extra oxygen improves the physical capacity of normal people over short periods, as Dr. Leonard Hill showed. But continued life in it would lead to a relative anæmia, the oxygen supply to the tissues would remain where it was, and the benefit which would accrue would come from putting the heart in the easy position which we now give it by lying down. Perhaps it, too, would grow smaller.

Dr. Campbell also gives some very interesting data about the colour-index. In animals which become polycythæmic from diminution of oxygen there is the diminution of the colour-index which usually accompanies active blood formation, but it rises considerably in those which become relatively anæmic from living in high oxygen pressures. There seems no other explanation of this than to assume that the red cells normally present in the blood are on the average immature; if the demand for red cells is diminished there is time for them to develop fully before they come into the circulation. This interpretation is consonant with the facts that a continual need for fresh red corpuscles is associated with either a low colour-index or histological evidence of active regeneration or both. As Prof. Barcroft's expedition to Peru showed, reticulated cells are continually present in the blood of natives living their whole lives at those high altitudes. Immature corpuscles are regularly to be found in small animals like rats and mice which live a shorter time and at a much higher rate than man. A rabbit normally has a colour-index of about 0·7 on the human scale. It seems likely that the really mature red cell contains a good deal more hæmoglobin than we have suspected. A similar rise in colour-index was reported in cases of hunger œdema in Germany during the war, due presumably to the difficulty of making new cells.

[1] Compt. rendus de la Soc. Biol., 1901, liii., 741.
[2] Jour. of Physiol., 1927, lxii., 211; and lxiii., 325.

PLAGUE EPIDEMICS IN THE PAST.

ALL epidemics bring out at once the best and the worst of human nature, but in the records of plague epidemics of the past nothing stands out more forcibly than the hopeless despair of both those attacked and those who expected to be. During the great epidemic of 1348, for instance, there was living in a Franciscan house at Kilkenny a friar by name John Clyn, who kept a chronicle which has come down to us. He notes in very simple language the progress of the plague; how some people died with spitting of blood, obviously the pneumonic form, and how from fear and horror men scarcely dared to carry out the duties of visiting the sick and burying the dead. He ends his chronicle for 1348 by saying "the plague was sore in Kilkenny in Lent, for between March 6 and just beyond Easter, eight preaching friars (i.e., Dominicans) died and in nearly every house there was more than one death for, as a rule, husband, wife, their children, and dependants trod but one way, the way of death."

In an excellent new book on the "Plague in Shakespeare's London," [1] which is really a commentary on Dekker's "Plague Pamphlets," [2] Mr. F. P. Wilson illustrates from contemporary documents the attitude of mind of both the sick and whole during the epidemic of 1625. For the time being it was practically, "Let us eat and drink for to-morrow we die." Many of the clergy and the medical profession, forgetful of their duty, fled to the country, though other

[1] The Plague in Shakespeare's London. By F. P. Wilson. Oxford: Clarendon Press. 1927. Pp. 228. 12s. 6d.
[2] See THE LANCET, 1926, i., 1 99.

do them justice, stayed and worked to the death, ile some, like Mr. Whitacre, survived.

"Mr. Whitacre . . . escaped not only then, but all the ntagion following without any sickness at all; though he ciated at every Funeral and buryed all manner of People, ether they died of the Plague or not. He was given to ak, seldom could preach more than one quarter of an ur at a Time."

Mr. Wilson begins his book by quoting excerpts m various sources as to the theories of the causes he plague, and the various remedies both preventive l curative. It is interesting to note that many of se contained either garlic or onions, both of which well known antiseptics. But as a rule the medical ulty was hopelessly at sea and we cannot wonder Margaret Paston's opinion, not a kindly one, en she wrote to her husband in 1464: "For ddys sake bewar what medesyns ye take of any isyans of London; I shall never trust to them ause of your fader and myn onkyl, whys sowlys l assoyle." The authorities, however, did do ir best to prevent the epidemic spreading, as was wn by the various Plague Orders issued from time time between 1518 and 1665. These dealt with h matters as sanitation, the provision of a state nunicipal medical service (by no means overpaid), angements for burial, segregation of the infected, the establishment of pest-houses for the sick, first of which was in the parish of St. Giles, plegate. Early in his book Mr. Wilson notes the sence of slaughter-houses in the heart of the City mentions that the shambles in the parish of Nicholas within Newgate "were still a menace to lth in 1603," and that in the fourteenth century e putrefied blood of slaughtered beasts was allowed un in the streets." It is true that our ancestors but crude ideas on sanitary matters, but it must remembered that up to 1855, when Smithfield ket was finally closed, much the same conditions ted as in the seventeenth century. The shambles nd Smithfield, Newgate Market, Clare Market, Aldgate High-street were a disgrace to any ilised town and, except the last named, were only e away with on the opening of the Islington ket. On slaughtering-days blood could be seen ning into the gutters in Aldgate High-street at t as late as 1880, and although there was much rovement in recent years the slaughter-houses e only just been closed.

HE ACOUSTICS OF ARTIFICIAL PNEUMOTHORAX.

HE physical conditions under which the coin or sound of Trousseau is heard in the chest are not rately known. In an article which appeared in issue of Oct. 21st Dr. A. I. G. McLaughlin remarked he fact that the sound is better marked when the ra has been thickened or sclerosed by the onset subsequent absorption of a pleural effusion, and it is rarely heard where such effusion has not rred. In a recent publication,[1] Dr. C. Minerbi, S. Mongini, and Dr. E. Benassi deal in a very austive manner with the acoustics of pneumoax. Observations were carried out in 50 young en. In all the cases of complete therapeutic mothorax of recent standing two distinct tones Trousseau's bell sound were invariably found—a er tone corresponding to the extreme points of a eter extending from the interscapular vertebral e to the base of the mediastinum and a lower tone esponding to a line uniting the pleural apex with al margin. The authors also noticed that these sounds were only obtained when the internal sure reached a level between zero and +1 of water manometer—i.e., was not negative. A fact hy of note is that in the first 24 hours after tablishing the pressure in an already complete mothorax the bell sound cannot be produced when the pressure has become positive. The authors ascribe this to a marked "oncopleural reflex," due to the sudden trauma experienced by the pleura. This reflex consisting of a dilatation of the lymphatics and the subpleural parietal veno-capillary network, either by local stimulation or by a reflex caused by compression of the large mediastinal veins, increases the thickness and "succulence" of the pleura, and hence diminishes the firmness of its tissue and the capability of the pleuritic cavity to lend itself to the vibrations of its gaseous contents. It is also worthy of note that the higher tone is not usually found in cases of pneumothorax of many months' duration; this depends, in the authors' opinion, on increased vascularisation and consequent softening of the pleura, and the mechanism is of the same nature as the "oncopleural reflex." It seems, therefore, that the acoustics of pneumothorax are capable of various explanations and more researches are necessary before the subject can be completely and satisfactorily elucidated. The work of the Italian authors is painstaking and includes a bibliography of over 100 references.

[1] rchivio di Patologia e Clinica Medica, vol. vi., fasc. 11,

ENDEMIC TYPHUS IN AUSTRALIA.

IN a recent paper [1] Dr. Frank S. Hone, chief quarantine officer of South Australia, remarks that in three previous communications in 1921 and 1923 he had reported a number of cases resembling typhus fever which had been observed in Adelaide and its suburbs since 1918. During the last four years he has obtained notes of 81 more cases which had been sent to him by more than 25 medical practitioners. The cases in this series presented the same picture as that previously described. The condition was most likely to be mistaken for typhoid fever or measles. In mild cases the patient might not receive medical attention during the initial stage, and only come under observation for a complicating pneumonia in defervescence, when the history and appearance of the skin would suggest the true diagnosis. The prominent points in the clinical history were the headache and the rash. The headache, which was more severe than in typhoid fever, persisted until the rash was well developed. The rash was of the maculo-papular type and petechiæ only appeared in severe cases and at a late stage. The toxæmia varied greatly, being ill-marked in healthy young adults and pronounced in old people and alcoholic subjects. The most frequent complication was hypostatic broncho-pneumonia which was the usual cause of death in the fatal cases. The great majority of the patients recovered. Of the 81 cases only 5 died, a mortality of about 6 per cent.; all the fatalities were men over 60 except a woman, aged 48, suffering from tabes and cystitis. In contrast with European typhus the body louse was invariably absent in these cases. On the other hand, the disease appeared to be closely associated in some way with the prevalence of rats and mice. In its relatively benign nature, absence of lice, and association with rodents as well as in its sporadic character and late appearance of the Weil-Felix reaction, the Australian disease shows a striking resemblance to the tropical typhus of the Federated Malay States and the endemic typhus in the South-Eastern United States to which we drew attention earlier in the year.[2]

[1] Medical Journal of Australia, August 13th, 1927.
[2] See THE LANCET, 1927, i., 36 and 404.

THE RELIEF OF STERILITY IN MAN.

OPERATIONS for sterility in man have not met with much success up to the present time. Bilateral epididymitis is recognised as the commonest cause of sterility, and the operations that have been planned to overcome the sequential blockage in the vasa deferentia or the epididymal canal have consisted in various forms of anastomosis and short circuiting. Unfortunately, the lumen of the vas and of the epididymal canal is so small that however carefully an anastomosis is carried out the cicatrisation that

follows the operation undoes its good effect. Results, indeed, have been so disappointing that most English surgeons have abandoned the attempt to treat sterility by operative means. In place of operation the surgeon has tried to meet the difficulty by the withdrawal of spermatozoa from the testis and the use of artificial insemination, but this merely substitutes one hopeless method for another. It is strange that artificial insemination, which gives good results in the stockyard, should be useless in the human being; even when a good supply of semen is available insemination gives no result. There is excellent material here for research. Apparently all the ingredients are present and yet fertilisation is of the very rarest occurrence; one is almost forced to the conclusion that the absence of the psychic element must be called in to explain its negative results. It is, therefore, incumbent upon surgeons to persevere in the improvement of the technique of anastomotic operations in the hope that some day the almost inevitable occlusion of the duct by cicatrisation may be avoided. The operation for sterility, described by Dr. H. C. Rolnick, of Chicago, in the October number of *Surgery, Gynecology and Obstetrics*, has been planned with this idea in view. Instead of carrying out anastomosis between the vas and the epididymal canal, a junction is effected between the vas and the rete testis; the fact that in the latter structure there exist several tubules instead of one increases the chance of success. In order to diminish the risk of sealing up the end of the divided vas a catgut suture is passed through the last inch of the vas, the rete testis, and the testis itself; this is brought out through the skin of the scrotum and tied on its external surface. The suture also acts as an anchor, preventing movements of the testis by the cremasteric muscle and improves the chance of primary union. It is left in seven to ten days and then removed. The whole object of the operation is to reduce to a minimum the amount of scarring round the site of the junction between the vas and the rete testis, and to ensure that during the process of healing the divided portion of the vas shall remain pervious. The operation is too recent to allow of the author publishing results; it seems to have been satisfactory when carried out on dogs.

THE DUST-CELLS OF THE LUNG.

ANYONE who lives in London and looks with the microscope at a bit of the greyish or brownish mucoid sputum which he coughs up in the morning will see a most exquisite example of phagocytosis of dust particles by large clear cells. It is the normal mechanism which does its best to keep our lungs as clear of extraneous matter as may be. Histological sections of the lung of anyone who breathes dirty air show the same picture which is developed to an extreme degree in mitral stenosis, when the remnants of red blood corpuscles which have oozed through the distended capillaries are taken up in great quantities by the similar "heart failure" cells. It used to be thought that these phagocytic cells came from the epithelium lining the alveoli, irritation leading to their proliferation and detachment. But in recent years this origin has been much disputed, and it has been supposed that they were endothelial cells from the lung capillaries or histiocytes from the alveolar walls. A. Policard (Lyons) has combined two views in his hypothesis, that they come from the lining of the alveoli, and that this is mesodermal rather than epithelial. Dr. H. M. Carleton, of Oxford, has recently [1] re-examined the question in a variety of ways—histology, vital staining, tissue culture—and comes to the conclusion that dust cells are indeed derived from the cells lining the alveoli, and that these are epithelial in nature; in other words, he reaffirms the original interpretation. Phagocytosis by epithelial cells is not really so very uncommon, even in mammals; many cancers show an exaggerated degree of it. These epithelial dust cells are, perhaps, chiefly peculiar in their capacity for amœboid movement, for after picking up partic in the alveoli they will penetrate the lymphatics of lung, and travel long distances in these vessels and the bronchial glands.

[1] Quart. Jour. Micros. Sci., 1927, lxxi., 223.

THE NEW R.A.F. HOSPITAL.

THE building opened at Halton, near Wendov on Monday last will be the principal hospital for Royal Air Force and already has accommodation more than 200 patients. At the opening ceremony Samuel Hoare, the Secretary of State for Air, poin out that there is no intention of duplicating hosp accommodation where military, naval, and c institutions are available for the needs of the Fo Last year more than 1200 R.A.F. cases were admit to naval and military hospitals, which proves, said, a sincere wish to avoid the extravagant po of insisting upon special arrangements being made every man in this branch of the Service. At Halt however, there is no alternative accommodation, although the Air Force station there is the larges the world the hospital has hitherto been housed huts that were erected early in the war and v converted to medical use later. The new build which we describe on page 995, will not only serve local camps, but will also be a centre for all R.A cases for which convenient provision cannot other be made, including those from overseas. The Fo said Sir Samuel Hoare, is rightly proud of its med and nursing service, and the standard of health w it maintains is very high. The most efficient med and surgical assistance is required to meet inevitable strains and risks of life in the air, an the present time, he might have added, there is a need that candidates of the right type should the service. Its attractions from various point view deserve the close attention of men who are committed to any other form of practice.

CHOLECYSTOGRAPHY AND THE LYON TE

CLAIMS for the serviceableness of the duod tube have been put before London medical soci recently [1] by Dr. B. B. Vincent Lyon, of Philadel These claims lend interest to articles appearing i American medical press concerning the relative v of the two main means at our disposal for investig the pathology of the gall-bladder and biliary pass Lyon's test, which consists of the examination o main fractions of bile recovered by duodenal tu after the injection of a solution of magnesium sulp is readily available to every practitioner who ca devote the time and care necessary for its perform Cholecystography, by which the filling and emp of the gall-bladder are observed radiographically the oral or intravenous administration of the he halogenated phenolphthaleins, can never be perfo without expert radiological assistance. It s however, probable that when this latter assista available the method possesses a higher degr accuracy than the Lyon test. Such, at any is the opinion expressed [2] by W. W. Boardman, has made a comparative study of the two metho a series of more than 60 cases at the Stanford M School, San Francisco. Comparing, first, the with the intravenous method of dye administr for the X ray test, he finds a very high marg error when the oral method is employed, more 50 per cent. of his cases having appeared to be p logical by this method, whereas the intrav procedure showed that only 12 per cent. were ac incapable of receiving the dye into the gall-bla These figures are far from agreeing with tho most observers in this country, and suggest tha technique used for oral administration has left thing to be desired. It, however, teaches a that has been learnt here as elsewhere—namely failure to visualise the gall-bladder must be acc with some reserve when the oral method onl been employed. In 11 cases in which both tests

[1] See THE LANCET, Oct. 29th, p. 918.
[2] Amer. Jour. Med. Sci., 1927, clxxiv., 536.

rformed, and in which subsequent operation proved e presence of gall-stones, marked loss of the epithe-m, or thickening of the gall-bladder wall, it was ınd that dark brown "B" bile was obtained in ır cases which had failed to fill during cholecysto-aphy, and which were the site of definite patho-ical change when examined at operation. In inting out this apparent superiority of the X ray st as a means of distinguishing gross disease of e biliary tract, the writer is at pains to remark at the reliability of the Lyon test must inevitably pend to an appreciable extent on the care and perience of the investigator in examining sediment. ith a lesser degree of experience, ordinary observers n hardly expect to obtain results as reliable as ose described by Dr. Lyon himself.

TRIBUTE TO SIR CHARLES MARTIN.

THE appearance of Prof. C. J. Martin's name in e recent list of Birthday Honours was cordially lcomed by the staff of the Lister Institute as a well-served tribute to the high scientific distinction of ir chief during the past 24 years. At a specially ıvened meeting of the staff it was decided that e occasion was a fitting one to present Sir Charles rtin with his portrait as a token of their personal eem and of their appreciation of his services. bscriptions to the portrait were confined to the esent staff and research workers, and to past mbers of the staff during Sir Charles Martin's ectorate. The portrait by Mr. Neville Lewis has en much satisfaction, and its presentation took ce in the library of the institute on Friday last, t. 28th, by Prof. Harden, who presided over a ge gathering of the subscribers. Speaking as one o could recall Dr. Martin's arrival as director of e institute in 1903, Prof. Harden referred in eloquent ms to the scientific and administrative ability ich he had displayed, his versatility and helpful-ss; and he laid stress upon the director's personal alities, saying that his tact had conduced greatly that domestic harmony and camaraderie which l ever been the pride of the Lister Institute. Charles Martin in response testified to the good owship which had always existed among staff and rkers, and thus rendered pleasant the years he l spent among them.

THE LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE.

LAST year's industrial dispute seriously delayed e building of the new London School of Hygiene d Tropical Medicine, and the premises are not ely to be opened until the spring of 1929. Mean-ile, the work of the school is steadily growing, and ee divisions are in working order. The Division of dical Zoology embraces a great part of the activities the old Tropical Division; the Division of Bacterio-y and Immunology has been a school of the iversity of London since the beginning of last nth, and has a flourishing course for the new loma of Bacteriology; whilst the Division of idemiology and Vital Statistics has acquired the ne status, and is temporarily established at the tional Institute of Medical Research. The school's rd annual report, which was presented to the vernors on Oct. 31st, refers to the proved advan-es of the lengthened (20 weeks') course in tropical dicine and hygiene, as now given at Endsleigh-dens. The director, Dr. Andrew Balfour, leaves later consideration a proposal to offer shorter rses to medical men who are pressed for time, as the suggestion that brief courses should be anged for laymen who are going to tropical or sub-pical climates. It is felt that the provision of h instruction would be welcomed by business ns and institutions which send their employees road. The interest of the business community is ely to be invoked also when the time comes for sidering the recommendations of the committee appointed by the Minister of Health to report on the best means of securing clinical and pathological facilities in London for the study of tropical medicine. This committee wanted to see an Imperial Hospital of 150 beds set up in London, and pointed out that such a hospital is needed not only for purposes of research and teaching, but also because there is actual suffering at present unrelieved. A possible site is a strip of land in Malet-street, being part of the land in Bloomsbury lately acquired by the University. It would be appropriate if a large part of the £250,000 required for the erection of an Imperial Hospital were to come from commercial people who stand to gain by the opening up of tropical countries.

WE deeply regret to announce the death on Sunday, Oct. 30th, at Forest Edge, Forest Row, Sussex, of Dr. Henry Patrick Cholmeley, at the age of 68. Dr. Cholmeley was for many years assistant editor of THE LANCET, and his death brings real grief to a large number of former colleagues and friends. An obituary notice will appear next week.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

CCXLVIII.

TREATMENT OF BRACHIAL NEURITIS.

CLOSELY comparable to sciatica in the lower extremity, neuritis of the trunks forming the brachial plexus may arise from a large variety of causes, of which chronic goutiness, rheumatic fibrositis, injury, and infectious fevers are the commonest.

Chronic infection from pyorrhœa, antral abscess or other sinus suppuration, chronic intestinal or renal infection, may be the source of an infective peri-neuritis affecting one or more cords of the plexus, more commonly the posterior. Acute brachial neuritis is a most painful affection usually developing gradually during several days from pain around the back of the shoulder and upper arm, soon spreading down to the elbow and wrist and into the back of the hand, and even the finger-tips. When the posterior cord alone is involved then the back of the hand and knuckles is the lowest point for the pain to reach. The intensity of the pain, resembling knives cutting or rats gnawing the flesh, may render sleep impossible without the aid of hypodermic injections of morphia or heroin, and complete rest in bed will be essential with the arm supported on a soft pillow or cushion. Fixation of the limb by strapping or bandaging to the side will not be borne as the patient finds change of posture at intervals an absolute necessity, even though movement for the moment aggravates the pain. Moist heat in the form of an iphlogistine poultices or a paste of kaolin with glycerine and menthol heated and spread on lint, and covered with thick wool, may be kept on for hours at a time; or linseed and mustard poultices, the latter very weak, in the proportion of 1 part to 12 of linseed, may be used and changed every four hours. The linseed poultice should be covered with gauze on the side next the skin, avoiding needless mess. Before applying the actual poultice the skin may be painted with glycerine of belladonna or with warmed lin. A.B.C. made of lin. aconit., lin. bellad., and lin. chlorof. in the proportions of one of aconite to two of belladonna and three of chloroform liniment. Half an ounce of warmed tincture of opium may with advantage be added to the linseed meal in making each poultice.

Ol. gaultheriæ, Bengué's balsam, and similar preparations may be used alternately with the belladonna liniment, though patients are apt to tire of the smell of oil of wintergreen. During the daytime, when the poultices are changed, it is a useful variant to give applications of radiant heat to the neck and shoulder. Sun-ray by the tungsten carbon arc-lamp,

or ultra-violet rays from the cooler mercury-vapour lamp, are also a useful form of treatment. Other forms of electrical treatment may also be employed, such as diathermy and salicyl ionisation. The latter is not very easy to apply to the neck and arm, but may best be given through a moist sponge or thick pads of wetted gamgee tissue. Ionisation sometimes aggravates the pain and should then be given up for radiant heat and poultices.

High-frequency currents in the form of violet sparks, or auto-conduction, are quite useless except as a suggestive treatment, but the positive breeze of a large static machine may act beneficially both directly and indirectly. Faradisation should never be employed, and the same applies to massage in the stage of active neuritis. Not until all signs of active inflammation of the nerve-sheaths in the form of tenderness to light pressure and darting neuralgia have passed away may massage be employed. So limited are the movements of the shoulder-joint permitted by a patient in the first two or three weeks of a severe attack, that adhesions in the joint may form, but though the physician is aware of this he must leave the limb as immobile as the patient will allow, at the same time giving warning that eventually such adhesions may require breaking down under an anæsthetic. In rare cases only do periarticular adhesions form in the wrist and interphalangeal joints.

If marked fixation of a wrist has occurred it is almost invariably evidence that the condition is an active infective arthritis and not neuritis at all. I have more than once seen acute arthritis of the shoulder-joint mistaken for neuritis, while it is a common-place to see chronic adhesions in a shoulder-joint as the result either of subacute rheumatism or of a traumatic synovitis resulting from a slight fall or sudden strain of the joint, diagnosed as "neuritis." The marked fixation of the joint with absence of hyperæsthesia or much local tenderness, and a history of pain limited to the shoulder region, and never extending much below the elbow, will at once distinguish this stage of chronic adhesions in the shoulder-joint from an acute neuritis. This is important to recognise, because the immobilisation necessary in the case of neuritis is the wrong treatment for the former condition, which requires passive movements and massage. In a great many of these cases of fixed shoulder, however, passive movements are useless until the adhesions have been well broken down under an anæsthetic. Gas is sufficient, but the limb must be completely uncovered, and the patient laid flat on a bed, so that the arm can be brought well up over the head. In addition to circumduction movements, it is important not to forget to rotate the joint well also. A point worth attention is the risk of dislocation of the shoulder in the action of bringing the arm up over the head during the anæsthetic. During this movement and before letting the arm down, the operator should press his fist into the axilla, thus keeping the head of the humerus from slipping below the edge of the glenoid cavity. The masseuse who is afterwards to perform the daily passive movements of the joint should be present at the operation, and should manipulate the joint under the anæsthetic to give her complete confidence as to the movements possible. The amount of pain following this slight operation varies; it is a good plan to have a fomentation ready to apply as soon as the anæsthetic is over, and a hypodermic injection of gr. $\frac{1}{4}$ of morphia is generally necessary.

More difficult to treat are the adhesions in the finger-joints which are a sequel in some of the more severe cases of brachial neuritis, accompanied by wasting of the finger-pads and glossiness of the skin. Such adhesions must never be forcibly broken down under an anæsthetic, as this always sets up considerable reaction and swelling with re-forming of the adhesions worse than before. Soaking of the hand in hot soda or brine solutions daily, followed by passive movements of the joints to the limit that can be borne without undue pain, may after many weeks gradually restore the movements of the stiff finger joints, but the process must not be hurried by to forcible treatment or injury will result.

After the pain of an attack of brachial neuritis ha passed off, in four to six weeks or longer, there i certain to be some general emaciation of the lim apart from any local muscular atrophy which ma result from the stress of the neuritis damaging an particular nerve-trunk. Massage of the limb may no safely be employed and faradisation best given wit the slower interruptions of the Bristow coil, or wit wave faradism, produced either by rhythmically slidin the secondary to and fro over the primary, or by passin the current through a pointed electrode dipping i and out of a narrow tube containing water, by th action of a motor or metronome.

By these means the recovery of the general wastin will be hastened. When the stress of the inflammatic damages certain nerve-trunks to the extent of causin degeneration of the nerve-fibres, local muscular atroph will be observed corresponding to the nerve-supp —e.g., atrophy of the serratus magnus when the lor thoracic nerve is involved, or of the deltoid in th case of the circumflex. When this degree of dama is done, electrical tests will show the presence reaction of degeneration—that is to say, the musc will not respond to the faradic current, but will sho sluggish contractions to galvanism, with perha stronger reactions to the closure of the current the anode. Faradism will then be of less use in th treatment of the wasted muscle than reversals interruptions of galvanic current.

A frequent form of neuritic pain about the shoulde joint that is generally diagnosed as neuritis is real a neuro-fibrositis, due to a subacute or chron fibrositis affecting the fascial planes and intermuscul septa at the base of the neck and shoulder. T ætiology of this condition is very similar to th of the more general brachial neuritis affecting t main nerve-trunks, the difference consisting in t situation of the fibrositis, either surrounding or a distance from the main nerves. The pain in th form of neuro-fibrositis mainly affects the should and base of the neck and does not spread down t arm below the area of the deltoid, except in a fe cases which commence as a diffuse fibrositis a spread to the sheaths of the main nerves, when t pains will extend further down the arm, even to t finger-tips.

Local radiant heat, sun-ray lamp or diatherm ionisation, and poultices will be of service as in t general brachial neuritis, but the pain is less seve and does not cause sleepless nights, requiring the u of morphia or heroin. Careful examination f sources of sepsis of dental or sinus origin must be ma and dealt with appropriately. Alcohol in all for should be forbidden in the acute stages of neurit though total abstinence is less necessary in neu fibrositis. Diet is of less importance than is oft stated, but the meals should be small in persons ov the age of 50. Internally, aspirin or salicylates, m purgation, and sometimes atophan should be tried.

Occasionally these cases become chronic, w persistence of neuralgic pain, especially on certa movements, and a few points may be found especia tender to pressure, particularly around the verteb border of the scapula or above the suprascapular fos These tender points should be carefully located a marked with a dermatograph pencil, and drama cures may occasionally be wrought by injecting th with a fine needle, using first two or three drops 2 per cent. novocaine solution and after waiting th or four minutes injecting 5 minims of 90 per ce alcohol. Great care must be taken when performi these alcohol piqûres over an intercostal space ne to pass the needle through the pleura. To avo this accident search should always be made w the point of the needle for the rib, this indicating t depth that is safe.

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Special Articles.

THE MINISTRY OF HEALTH:
ANNUAL REPORT.

THE report of the Ministry of Health for the year ding March 31st last contains an interesting summary the work of the department with respect to public alth. Eight years have now elapsed since the nistry was first formed, and advantage has been ken of the present opportunity of summarising its tivities as regards development and organisation. n outline of the volume should stimulate readers acquire it.[1]

International Work.

In the first place, the report deals with international alth work, the Convenant of the League of Nations ving placed on the constituent members certain ties relating to public health which were of an ernational nature. The permanent health organisan of the League has been concerned with the lection and circulation of particulars of the evalence of epidemic disease, and the provision of sistance to other nations in coping with formidable idemics, together with such work as the interchange visits between public health officers working in ferent countries, and the collection of statistics ating to cancer and tuberculosis. In connexion erewith an International Sanitary Conference was d in Paris from May 10th to June 21st, last year, e object being to revise and bring up to date the rk of the International Sanitary Conference of 1912. fewer than 70 countries participated in the iberations, and the conclusions of the Conference l be published separately, but, in brief, it may be ted that the Convention establishes the procedure ich should be followed on sea and land frontiers h regard to the importation of cholera, plague, low fever, small-pox, and typhus. The International alth Office in Paris will act as a clearing house of ormation as regards these diseases. A Conference s also held with regard to the prevalence of epidemic eases in the islands in the Pacific, and a unanimous ort contains recommendations as to the methods be employed in supplying information as to the idence and spread of those diseases in those areas.

Variety of Interests.

nstances may be given of the great variety of portant subjects which come within the scope of Ministry's activities. The Ministry have taken active part in connexion with committees which ve sat during the year under review with regard certain comparative aspects of child welfare, cancer, laria, and vaccine lymph. Inquiries were also de into the sanitary conditions in representative as of Northern Europe by 16 port medical officers various nations, in which four English ports were luded. Reference is made in the report to the ommendations of the Royal Commission on lunacy l mental disorder which was presented to Parliant last year. This report is still under the seration of the Ministry. There were 57,313 nurses istered under the Nurses Registration Act (9 and 10 . V. c. 94). In connexion with this it may be interest to note that during the year in question 2 nurses trained in Poor-law institutions sat for preliminary examination of the General Nursing ncil, of whom 1058 passed; and 1082 sat for the al, of whom 758 passed. The report remarks t the important contribution made by the Poor- service to the recruitment of the nursing profession s been secured for the future by the recognition of ny Poor-law infirmaries by the General Nursing ncil as training schools for general nursing.

[1] London: H.M. Stationery Office, or through any Bookseller, 7. 5s.

Notifiable Diseases.

From the table of the principal notifiable diseases it appears that there were 51,069 cases of diphtheria (including membranous croup), which was about 2500 over that for the previous year. There was a very marked decrease in the numbers of scarlet fever cases, the numbers being 81,672 as against 91,362 for the previous year, but small-pox cases increased by nearly 5000, but of which only 11 were fatal. The chief centre of infection from small-pox was in the County of Durham, which had 6645 cases. The report states that—

"the efforts of the local authorities and of their officers to combat the disease have been hindered by the indifference with which the disease is regarded by many persons, and by the consequent neglect of vaccination and of the most rudimentary precautions in the invaded areas . . . . It has been amply established that vaccination and revaccination afford a sure protection against this mild type of small-pox as well as against the more virulent type. On reference to the detailed figures in the report of the chief medical officer for 1926, it is shown that during the year no vaccinated person under the age of 13 years contracted the disease, and there was no instance of a person attacked by small-pox who had been vaccinated during the past eight years."

During the year 1925 only 44·2 per cent. of the children born were vaccinated. Although there was a large increase in the cases of small-pox during that particular year, yet the number of children vaccinated was lower than in the two previous years, when the number of small-pox cases was also lower. From the report it does not seem that local authorities coöperate as they might in cases of epidemics of small-pox. In one district there were some small-pox hospitals very much overcrowded, whilst other small-pox hospitals had vacant accommodation. To cope with this situation the Minister issued regulations under the Public Health (Prevention and Treatment of Disease) Act, 1913, by which regulations the county council concerned were enabled to coördinate the hospital resources of the county. A circular letter was addressed by the Minister to boards of guardians, drawing their attention to the need for strict compliance with the regulations, to prevent unrecognised cases of small-pox entering institutions and so spread infection.

Tuberculosis.

With regard to tuberculosis, the number of beds in residential institutions approved by the Minister has increased during the period under review by 779, the total being 22,202, of which 14,165 were provided by local authorities. The number of areas which contain out-patient clinics for tuberculous and other cripples is at present very few, but the Minister states that there is increasing evidence that—

"the local authorities generally realise the importance of making arrangements which will provide for the in-patient treatment of cripples at a properly equipped orthopædic hospital, and for their care and after-treatment at clinics established in connexion with the hospital and supervised by its medical staff."

Local authorities were advised by the Ministry that pretuberculous children should be dealt with by the local education authority in open-air schools and not in sanatoria. The report adds that Mr. Spahlinger's method of treatment for tuberculosis cannot be properly investigated here under present conditions. Inquiries with regard to Prof. Calmette's methods of inoculation are still proceeding, but it must be some years before a definite opinion can be expressed as to its efficacy. Tests are being made in Scotland of the method of treating this disease devised by the late Prof. Ruppel, but up to the date of the report the results of the tests were not known. The number of cases on the Register of Infections kept by medical officers of health was 358,133, of whom 165,987 were females. The number of deaths from tuberculosis has dropped from 54,295 in 1915 to 37,525 in 1926. The number of deaths from pulmonary tuberculosis has decreased more than 25 per cent. during the past 12 years and the deaths from non-pulmonary

tuberculosis have decreased by 45 per cent. during the same period.

Medical Benefit under the National Insurance Acts.

The total cost of medical benefit to the insured population was approximately £7,857,000, of which about £5,887,000 was paid to practitioners in respect of treatment, the balance being allocated to drugs and appliances. £200,000 was distributed to rural practitioners for mileage payments. (The insured population of England entitled to medical benefit was about 13,200,000.) £1000 was deducted from the remuneration of 77 medical men in 1926 as against £1549 to 105 practitioners in 1925, which, in turn, was a decrease of £504 and 29 respectively during the year 1924. Of the 77 cases above referred to only 16 cases were dealt with which involved allegations of failure or refusal to visit, unsatisfactory treatment, &c., and the department rightly says that this indicates that a high standard of treatment has been secured. Of the remaining 61 cases, 15 were in respect of irregular certification, 5 cases of fee charging, and 21 of failure to keep proper records. The highest amount withheld was £60 which was for failure to keep proper medical records. The other sums varied from £2 2*s.* to £50. There were 314,710 persons referred to the regional medical officers for report, this representing an increase of 70 per cent. on the figures for 1925. Of this number over 75,000 "declared off" the funds prior to examination and nearly 63,000 failed to attend. Of the remaining number (about 175,000), 30 per cent. were found to be incapable of work.

New M.O.H.'s.

During the year 70 new appointments of medical officers of health were sanctioned by the Minister. In 30 cases the officer appointed will devote his whole time to the duties, and by the end of the year 349 (out of 1231) medical officers of health in England were full-time officers.

MEDICINE AND THE LAW.

Doctors' Accounts: Liability to Render Details.

THE county court judge at Newcastle is reported to have stated in a recent case that a doctor's patients are entitled to detailed accounts and that in this respect a doctor is in no better position than any tradesman. This is no doubt the strict law, but the learned judge's dictum need not be interpreted as meaning that a medical practitioner must in future render all his accounts with the detailed itemisation of a grocer's bill. The contract between practitioner and patient is that the patient will pay the reasonable charges for services rendered. Naturally the patient, if he desires to go into details, is entitled to know what are the services for which charge is made and what is the charge for each service, so that he may form his own conclusion whether the charges are reasonable or not, and may contest them if he considers them excessive. The remarkable feature of the contractual relations between the medical profession and its patients is that, although the services rendered are often difficult to assess in pounds, shillings, and pence, there is rarely any agreement in advance as to the exact amount to be charged and yet there is seldom any challenge by the patient of the doctor's bill which, perhaps, does not reach him till long after the services have been rendered. The practitioner must always be prepared to justify his charges by furnishing details, but the patient will probably appreciate the fact that a lump sum account is often a smaller amount than the total of a catalogue of particular items from which no detail is omitted.

Alleged Food Poisoning in Restaurant.

The recent action of Richards *v.* Appenrodt Ltd., tried before Mr. Justice Horridge and a special jury, was a claim by a plaintiff described as a beauty specialist for damages for personal injuries alleged to be caused by food poisoning due to her having eaten a liver sausage sandwich at a Piccadilly restaura belonging to the defendant company. As is usu in these cases, the plaintiff's counsel was obliged admit the impossibility of direct proof that the poiso ing was due to any particular portion of food; t court was asked to infer from the evidence that t particular food caused the poisoning. Medical eviden was called in support of this inference, though it w admitted in cross examination that all the sympto might not have been caused by food poisoning and th the period of incubation of bacilli varied from a f hours to four days, so that it was conceivable that t poisoning might have developed as a result of fo eaten earlier. The manager of the defendant compa said that on the average 20 lb. to 30 lb. of sausa were delivered every morning at these premis Most of this material would be sold the same da If any remained unsold, it was placed in an ice-s downstairs if the weather was unfavourable; if weather was dry, it was left on dishes in the sh It was also stated that any sausage sandwic remaining over at the end of the day were given aw and that the company had a contract with a firm insect killers for keeping the premises free of verm a representative of this firm visiting the premises o a week. The sanitary inspector for the borough Holborn and the manufacturer who supplied sausages gave evidence that the place of manufact was perfectly clean. The jury found for the defend company.

Euthanasia.

Mr. Justice Branson, at the recent Chester Assi used some remarkable words in drawing the attent of the grand jury to the case of a father who, accord to the depositions, had taken the life of his li daughter to put an end to her sufferings from incurable disease. "It is a matter which gives food thought when one comes to consider that, had poor child been an animal instead of a human be so far from there being anything blameworthy in man's action in putting an end to its suffering, would actually have been liable to punishment if had not done so." The facts of the case were of t pathetic kind to which many medical practitio could find parallels in their own experience. man's wife died early this year, suffering from tu culosis and curvature of the spine. She left children. One of these—a little girl 4 years of a also contracted tuberculosis and, early in J developed gangrene in the face after an attac measles. The father nursed the child with dev care. The doctor was of opinion that she could live long. One morning last July, after sitting u night with the child, the father went to his mothe law's house and told her he had drowned the l girl, as he could not bear to see her suffering any m He then surrendered to the police, informing t that he had put the girl in a bath where the p found her lying face downwards in nine inche water. Medical witnesses said that the child's d was expected from the nature of her disease, and she was in such a state that shock would have ca death if an attempt had been made to move h hospital. The doctor, replying to counsel for defence, conceded that it was conceivable that child could have died from shock consequent on being lifted out of her cot. Perhaps on the bas this answer the jury mercifully found itself abl return a verdict of "Not guilty."

A WARWICKSHIRE CONVALESCENT HOSPITA Keresley Hall, a "black and white" house a few miles Coventry, has been bought, with 10 acres, by the Coventr Warwickshire Hospital as a clearing-house for convales

MANCHESTER AND SALFORD MEDICAL CHAR FUND.—At the annual meting of this Fund it was s that for the year ending June 30th last the ordinary i had amounted to £33,055, as compared with £22,254 in From the Alexandra Day effort £3870 had been rece whilst the university students on Shrove Tuesday collected £12,061. The expenses of the fund amount about 6 per cent. of the receipts.

Public Health Services.

OMEN AND PUBLIC HEALTH APPOINTMENTS.

HE Medical Women's Federation, having noted t a large proportion of the underpaid public health ointments advertiscd by local authorities are g accepted by women, has issued the following ice :—

omen who may be tempted to accept these black-listed intments are asked to remember the following facts :—

That the whole position of women in the medical ession depends on their complete loyalty to professional dards of conduct and policy. They would never have admitted to professional organisations nor accepted olleagues in any sense if it had been anticipated that would attempt to undercut their male competitors. ing is more calculated to introduce an element of rd into the relations of men and women in the profession a spread of this practice.

That the salaries offered would be far lower than they now but for the determined stand made in pre-war . The present position is not a new one. Medical en ever since their admission to the profession have to make precisely the same sacrifices for principle as now demanded. With the inauguration of the School cal Service in 1908, and later when maternity and welfare posts were created, persistent efforts were e by local authorities to pay their assistant medical rs below the British Medical Association minimum, to secure women at a lower rate than men. With rare ptions the efforts were a failure, and " black-legging " so uncommon that until the close of the war, comtively few authorities wasted time in advertising posts w the agreed minimum.

That the salary scale fixed by the British Medical ciation and the Society of Medical Officers of Health ne too high in relation to the enormous expense of cal education and the heavy cost of maintaining a ehold. Young men and women with few responsiles should do nothing to make life impossible for the y of both sexes who have heavier obligations.

That lowered pay invariably implies lowered status and ige. Holders of appointments which have been banned iably find themselves cut off from professional advance- and stultified in all their work. The woman who ps herself as belonging to an inferior grade of doctor ot complain if she is taken at her own valuation.

That in regard to salaries, the minimum always tends come a maximum, and once the agreed scale is aband and the professional ranks are broken, the lowest ies will tend to be adopted by other authorities making appointments. Authorities wishing to be economical d proceed still further, and the scale all over the country d be rapidly depressed.

That attempts to evade the scale and split the ranks he profession by offering a man's post at the agreed and a woman's at slightly below are particularly to be ecated. Where the rule of " equal pay for equal work " plated, there is no limit to the extent to which women be exploited and sweated. Medical women in the c health service have often been faced with the danger rise for male employees only, which could only be ed by appealing to an inviolable rule.

That a woman who has betrayed her professional ren, past, present, and to come, cannot expect the ort of her colleagues or of professional organisations y time in her career.

he leaflet is being distributed to all newly qualified ical women and to applicants for underpaid posts.

FECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED OCT. 22ND, 1927.

otifications.—The following cases of infectious ase were notified during the week :—Small-pox, 0 (last week 124) ; scarlet fever, 2450 ; diphtheria, 43 ; enteric fever, 71 ; pneumonia, 975 ; puerperal r, 37 ; puerperal pyrexia, 93 ; cerebro-spinal r, 6 ; acute poliomyelitis, 30 ; acute poliophalitis, 3 ; encephalitis lethargica, 30 ; dysentery, ophthalmia neonatorum, 128. There was no case holera, plague, or typhus fever notified during the k.

the 200 cases of small-pox, 14 were reported from the ty of Derby (Alfreton 10, Ripley 3, Belper 1), 45 from nam (Gateshead and South Shields 11 each, the remainder scattered over many urban and rural districts), 7 from Gloucester (Bristol 6, Warmley R.D. 1), 1 from Lancaster (Preston R.D.), 4 from Northumberland, 8 from Nottingham (1 from the county borough, the others scattered over the county), 5 from Warwick (Coventry R.D.), 8 from Yorks, North Riding (Middlesbrough 7, Eston 1), 34 from Yorks, West Riding (Doncaster 2, Leeds 6, Sheffield 3, the others from nine districts), 5 from Brecknock (Brynmawr), 24 from Glamorgan (Aberdare 10, Gelligaer 3, Mountain Ash 2, Pontypridd 9), 45 from Monmouth (34 of these from Ebbw Vale).

*Deaths.**—In the aggregate of great towns, including London, there was no death from small-pox, 3 (0) from enteric fever, 20 (1) from measles, 2 (0) from scarlet fever, 10 (0) from whooping-cough, 39 (8) from diphtheria, 65 (13) from diarrhœa and enteritis under two years, and 63 (15) from influenza. The figures in parentheses are those for London itself. The number of stillbirths registered during the week was 260 in the great towns, including 45 in London.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

THE following are some 1926 statistics of eight London boroughs in different parts of the metropolitan area :—

Name of district and estimated mid-year population.	Birth-rate.	Death-rates per 1000 of the population.					Death-rates per 1000 births.		
		All causes.	Tuberculosis.	Cancer.	Respiratory diseases with influenza.	Heart disease.	Diarrhœa, &c., under 2 years.	Infant mortality.	Maternal mortality from childbirth.
Kensington .. (180,000)	15·1	12·8	0·89	1·91	2·4	2·1	13·6	60	3·3
St. Marylebone .. (105,800)	12·7	12·8	1·03	1·60	3·0	1·3	11·8	82	8·8
Hampstead .. (87,530)	12·3	10·6	0·64	1·54	1·6	1·6	5·5	60	2·8
Hackney .. .. (228,500)	17·2	10·8	0·88	1·41	2·1	1·4	17·0	59	4·8
Holborn .. .. (43,200)	12·4	12·1	0·81	1·46	2·7	1·3	22·4	90	3·7
Poplar .. .. (169,000)	21·6	11·4	0·96	1·27	2·5	1·3	17·2	70	3·5
Battersea .. (171,900)	17·3	11·4	0·96	1·53	1·8	2·0	9·4	62	3·4
Deptford .. .. (115,700)	18·2	11·3	0·90	1·37	1·9	1·6	9·0	56	4·7

The neonatal mortality-rates show a wide variation—viz., Kensington 18, St. Marylebone 28, Hampstead 33, Hackney 20, Holborn 41, Poplar 25, Battersea 27, and Deptford 23.

Kensington.

Dr. James Fenton points out that one of the satisfactory features in the drop of the infant mortality-rate from 78 in 1925 to 60 in 1926 is the decline in the number of deaths in the first month of life, the neonatal mortality-rate being only 18. He attributes this result to the concentration of effort on antenatal work in recent years. Antenatal work is now conducted at nine centres, including the clinic at the Queen Charlotte's Hospital Nurses' Home. More than 50 per cent of the working class mothers receive antenatal advice. During the last five years there has been only one maternal death following confinement amongst the women who have attended antenatal clinics in the borough during pregnancy, whereas there have been 57 deaths amongst those women who have not attended antenatal clinics. The borough has a good midwifery service. The council has a maternity home with ten beds and the guardians also have a ten-bed ward for confinements. The Queen Charlotte's nurses' home through its staff conducted 822 Kensington confinements. The antenatal work of this home is conducted by the medical staff of the hospital. The council maternity home was opened in 1924 in the grounds of St. Mary Abbot's Hospital, and the council pay to the guardians 5*s.* per day for each maternity case admitted, and

* See also p 1002.

the cost of additional nursing if required. During 1926 the council paid £853 in respect of 123 confinements and recovered £336 by patients' payments. For dealing with puerperal pyrexia, Dr. Remington Hobbs, medical superintendent of St. Mary Abbot's Hospital, has been appointed to act as consultant to the medical practitioners in Kensington, and arrangements have been made for the admission of cases of puerperal pyrexia into his hospital. Of 11 notified pyrexia cases 9 were removed to hospital and the only one who developed puerperal fever made a good recovery.

During the year a conference was held with various interested organisations to consider steps for reducing the damage done by rheumatic fever. As a result a scheme was formulated for the notification of rheumatic children under 16 years of age and for the establishment of a supervisory clinic, and this scheme has now become an accomplished fact.

The council has installed apparatus for the constant aeration and filtration of the water in all the four swimming-baths. The plant selected was that of the Pulsometer Engineering Co. and the results have been very satisfactory. A scheme for the prevention and early treatment of zymotic enteritis has now been in operation for three years under the superintendence of Dr. Ronald Carter. Full particulars are given and the results are claimed to be very effective. The nursing staff at St. Mary Abbot's Hospital are being immunised against diphtheria and the tuberculosis wards at this hospital are now linked up with the council's dispensary scheme. Dr. Fenton gives an encouraging account of housing conditions. The condition of the 2091 mews dwellings has been much improved. "Furnished houses," the most undesirable form of housing, have been gradually reduced from 187 in 1912 to 53 in 1926. For the purpose of the new by-laws the definition of "houses let-in-lodgings" has been altered by the exclusion of houses in which the tenant lives and in which not more than two additional persons or one family lodge. The difficulty in finding housing accommodation is becoming less and it is now possible to deal more actively with cases of overcrowding discovered.

St. Marylebone.

Dr. Chas. Porter cites as one of the chief events of the year the "representation" to the appropriate authorities that the Carlisle-street area must be regarded as an unhealthy one. The area covers about 16 acres and includes 533 premises and an approximate population of 5000. Negotiations with regard to the improvement scheme are in progress with the Ministry and the London County Council. There are about 300 premises in which meals are provided or food is sold ready cooked or is prepared for sale. On more than one occasion the St. Marylebone Council has pressed the Ministry and the London County Council to institute legislation for the registration of such premises, but no action has yet been taken by either of the authorities mentioned. Sterilised milk is permitted to be sold in unopened bottles without registration. Two vendors were successfully prosecuted during the year for selling this milk other than in the unopened bottle. The public analyst, Mr. J. F. F. Rowland, draws attention to the need for a cream standard. The ordinary cream samples examined during 1926 had an average fat percentage of 54·7, while the average fat in the tinned cream samples was only 28·87. Some of the tinned creams, he says, can only be truthfully termed enriched milks.

Hampstead.

Dr. Frank E. Scrase reports that it is the duty of the health visitors to inquire into and report upon all maternal deaths, stillbirths, deaths of children under 2 years of age, and cases of puerperal sepsis, and that a special subcommittee, including the three medical members of the health committee, Councillor T. Hancock Nunn, and Dr. Mary B. Douie (coöpted) has been appointed to go into the details of each case reported upon. During 1926 this subcommittee investigated 75 infant deaths, 39 stillbirths, 3 maternal deaths, and 10 cases of puerperal fever and pyrex Amongst other results it was found that 20 of t 39 stillbirths were due to difficulties in labour a were cases in which the services of the consulti obstetricians provided by the council might ha been advantageously utilised. The facilities require under the new regulations for puerperal pyrexia, ha already been in operation for some time in Hampstea Arrangements are also in force with the two nursi associations by which skilled maternity nursing c be obtained for any case in the borough. At t end of the year a scheme for the provision of artific light treatment for children attending the centr began to operate. The antenatal clinics in Hampste have always been municipal undertakings. Duri 1926, 308 expectant mothers attended, the total birt in the borough being 1077. The public analy Mr. H. E. Cox, draws attention to the fact th soft cheeses prepared from milk are not infrequen sold as cream cheeses. He also presses for a standa for cream. Of four samples of ice-cream examin two were merely frozen custard powder.

Hackney.

Dr. G. H. Dart gives the particulars of the fi year's work of the municipal centre in Lower Clapt road, which includes antenatal, child welfare, lig and dental clinics. Dr. Dorothy Gere successfu treated 190 cases at the light clinic, the length treatment varying from four weeks in skin disea to nine months in rickets. "Dramatic results" w obtained in impetigo and some cases of eczema a acne. Dr. Gere also claims to have obtained g results from the use of radiated dried milk in rick marasmus, and other conditions. The council h appointed Lady Barrett to act as consultant accordance with the puerperal pyrexia regulatio and have made arrangements with the Camberv research laboratories for the bacteriological w required. Skilled nursing and hospital treatm were already available. The number of expect mothers attending the four antenatal centres was 9 the total births being 3949. "The River Lea remained, during the past year, in the usual offens condition." Severe floodings occurred in Hack as the result of a storm on Sept. 1st, but the Lon County Council are said to be contemplating impro ments to their sewerage system which will prev future floodings.

Holborn.

Dr. C. W. Hutt says that the scavenging arra ments have been improved by the introductio motor vehicles. The collection of house refuse in main streets is now completed by 9 A.M., and mos the large old ashpits have been replaced by b The removal is done by a contractor. The refus first removed to the contractor's depôt at Vauxh where it is sorted and the useful portion salved. remainder is removed to dumps on brickfields Sittingbourne, where some of it is used for br making. The nearest house is one mile away from dumps and no nuisance is said to be created. Holborn Council are taking part in an investiga into the composition of house and trade refuse in metropolitan area, instigated by the Ministry Health. Five-ton samples of refuse have been ta at different seasons and from different classes property, and the samples divided according to fineness of the ashes and the other material suc vegetable matter, paper, metal, rags, glass, and b all weighed up and classified. Systematic efforts the suppression of rats have been maintained thro out the year. Dr. Hutt reports adversely with re to the proposals in the Factories' Bill of 1926. He tends that the proposal to transfer sanitary contr factories to the Home Office is undesirable, and dual control, extra expenditure, and no greater e ency would be the result. The Holborn Council passed a resolution disapproving of the new propo

Out of 25 samples of milk examined three found to contain tubercle bacilli. But little sati tion resulted from following up the cases, as modern practice of mixing milk at large cream

rendered it impossible to say from which farm the infected milk came. Efforts are being made to improve the conditions under which ice-cream is made in the "Italian colony" of Holborn.

The immunisation of children against diphtheria is being prosecuted energetically in Holborn. During the last five years about 1000 children have been Schick tested, of whom 752 were positive. Five hundred and ninety-one have been immunised, and the reaction after the injection of the toxin antitoxin and toxoid antitoxin has been in practically every case negligible. Dr. Hutt urges the importance of having the immunisation carried out as soon after the age of 6 months as possible, as more than half the deaths from diphtheria in London occur before the school age.

Poplar.

Dr. Frederick W. Alexander, in his thirty-fourth and final report, wishes the borough "may have the highest birth-rate and the lowest death-rate in the kingdom and an infantile mortality so negligible that there will be no necessity in future for a heading in future annual reports." A new and commodious welfare clinic was opened in North Poplar in January at a cost of about £3000. The maternity beds provided by the guardians are insufficient to meet the needs, and the establishment of a new joint maternity home by the council and guardians is under consideration. An additional health visitor has been appointed. The maternity and child welfare work is divided between the council and the Royal College of St. Katharine. Dr. E. M. Layman reports good results at the two municipal artificial light clinics. Illustrative charts are given and a full description of the technique employed. The report as to the results obtained at the light clinic of St. Katharine's is not so enthusiastic. Dr. A. G. Hamilton, who is in charge, finds that he obtains better results in the summer by exposing children to direct sunlight out of doors. He pictures the artificial sunlight room of the future as "a large, well-ventilated, well-warmed room, flooded with light from multiple sources, where the children can play in safety with nothing but their eyes shielded from the rays. The present method of short exposures, with children sitting or lying inert, has its obvious disadvantages." Prints of the plans of the observation wards, under construction at Wellington-road, are included in the report. The building contains on the ground floor two five-cot wards and an isolation ward, accommodation for a dental clinic, light clinic, milk laboratory, and a flat roof for open-air treatment, with the necessary accommodation for the nursing and domestic staff.

There were 43 notifications of ophthalmia neonatorum; the last case of impaired vision from this cause occurred in 1922. The visiting of cases of zymotic enteritis is most unsatisfactory owing to the uncertainty of the notifications. In 15 cases death occurred before the notification was received. The council resolved to supply Grade A (T.T.) milk for their free milk scheme from Jan. 1st, but in September it was reported that 15 out of 43 samples of this designated milk had proved unsatisfactory, and it was proposed to discontinue its use. Ultimately it was decided to reconsider the matter in April, 1927. The chief difficulties of the tuberculosis scheme are the shortage of adequate housing accommodation and the almost complete lack of work for tuberculous patients capable of being employed under special conditions.

Rebuilding is now proceeding in two unhealthy areas, in one case by the Poplar Council and in the other by the County Council. Four samples of margarine were found to be adulterated with mineral oil, varying in amount from 10 to 15 per cent. The analyst, Mr. A. E. Parkes, reports that many vendors sell as "pure cocoa" a compound containing added alkali. He thinks that such cocoa powder should have some special designation.

Battersea.

Dr. G. Quin Lennane says the outstanding feature of the year's work has been the development of antenatal work in connexion with the midwifery services. There are five municipal infant welfare centres and three voluntary ones. The antenatal cases are referred from the voluntary centres to the municipal, except in the case of one, which has a fortnightly antenatal clinic. The antenatal work is under the careful direction of Dr. Alice Bloomfield. The central clinic is at the borough maternity hospital and there are three branch clinics. The total patients attending numbered 1208. The births in the borough were 2969. It is an inflexible rule that every expectant mother, who applies for admission to the maternity hospital or for the services of the district midwife, should attend one of the antenatal clinics. The maternity hospital, with accommodation for 30 patients, admitted 625 cases, 14 of which came in for antenatal treatment. Of the cases confined 570 were delivered by midwives and 41 by doctors. In ten of the cases the consultant obstetrician, Dr. J. S. Fairbairn, was called in. Dr. Bloomfield reports that the cases attend at an earlier stage of pregnancy than heretofore. Thus 453 attended before the sixth month, 356 between the sixth and eighth months, and only 74 after the eighth month. Out of 906 new patients, only five cases of breech presentation escaped diagnosis; 17 breech cases were admitted to the hospital for external version under anæsthesia, and in seven of these version was successful, while in the remaining ten labour resulted in a living child in all but one case. A special V.D. clinic is held at the maternity hospital. Of the patients tested, 3·5 per cent. had a positive Wassermann in 1924, 2·1 per cent. in 1925, and 1·5 per cent. in 1926, the numbers tested in these years being 517, 653, and 658 respectively. Of the ten who gave a positive reaction in 1926, nine treated at the antenatal clinic had healthy babies. Six of these babies had a negative Wassermann and the other three had not been brought up for testing at the end of the year. The previous results of the pregnancies of these nine women are interesting. Thus 25 pregnancies resulted in 7 miscarriages, 2 stillbirths, 5 children who are already dead, and only 11 now living. Complete arrangements have been made to meet the puerperal fever regulations, and Mr. A. H. Richardson, of St. Thomas's Hospital, has been appointed consultant.

Considerable progress has been made with the Plough-road area improvement scheme, and photographs are given of the houses prior to demolition and the new tenements which have replaced them. The serious overcrowding in some of the wards has not been to any adequate extent abated owing to the lack of housing accommodation at low rentals.

Deptford.

Dr. Charles S. Thomson explains in popular language the rationale of diphtheria immunisation schemes. He shows how unsatisfactorily notification of pneumonia is working. There were 185 notifications and 108 deaths. He is not sanguine that the services of the consultant will be much utilised in the case of puerperal fever. He puts forward as some of the pressing needs of Deptford: a mothers' home for difficult breast-feeding cases; a hostel for babies when the mothers are forced to go into hospital; toddlers' playgrounds, as in Edinburgh; and a development of the educational side of the maternity and child welfare centres with sewing classes, lectures, and so on. New cases attending the antenatal clinics numbered 499 and the births in the year 2108. A great deal of attention has been given to the conditions under which people work in the workshops and factories in the borough, and a number of improvements have been inaugurated as the result of the visits paid. It reads as somewhat anomalous that previous to the inspections no washing facilities were provided at the soap works. There appears to be little prospect of any tangible amelioration of the widespread overcrowding. Some applicants have been fortunate in obtaining London County Council houses at Downham or Becontree, but the main desideratum is housing accommodation near at hand at an economic rent. The "representation" made in 1920 involved some 24 streets and 811 houses but

no action has yet been taken. A beginning has, however, been made with the Watergate-street area. The tuberculosis care committee has done useful work; a few children from infected homes have been boarded out under the London County Council scheme. At the light clinic, which is held in the basement of the Town Hall until the new Deptford health centre is built in Harton-street, there were 185 patients under treatment at the end of the year.

The Services.

INTERNATIONAL CONGRESS OF AIR NAVIGATION.

AT the recent Air Congress in Rome, presided over by Principe Amedeo Di Savoia-Aosta, the medical section was chiefly concerned in confirming the ordinary routine of its reports. Air Vice-marshall Munro was, unfortunately, unable to be present, but the proceedings were purely formal, the rapporteur, Signor Garsaux, reading out a subcommission's recommendations. Those of the most practical interest concerned some relaxation in the standards of fitness for pilots who had given previous proof of flying ability, while alterations were suggested in the period after which they had to come up for re-examination.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Comdrs.: H. W. Fitzroy-Williams to *Egmont*; P. M. Rivaz to *Barham*; and W. H. Edgar to *Vivid*, for *Rodney* (on commg.).

Surg. Lts.: S. G. Weldon to *Revenge*, on transfer; J. L. Malone to *Nelson*, on transfer; V. G. Horan to *Vivid*, for *Rodney* (on commg.); G. Rorison to *Barham*; and J. J. Keevil to *Warspite* (both on transfer).

ROYAL ARMY MEDICAL CORPS.

Maj. R. G. S. Gregg retires on ret. pay, and is granted the rank of Lt.-Col.

Maj. J. M. Pinkerton to be Temp. Capt., and temporarily relinquishes the rank of Maj.

Capt. D. J. MacDougall to be Maj. (Prov.).

S. M. Burrows to be Temp. Lt.

Lt. (on prob.) P. G. Bentlif, from the secd. list, is restd. to the estabt.

Temp. Lt. J. W. Dowzer relinquishes his commn.

ARMY DENTAL CORPS.

Capt. A. B. Austin to be Maj.

Capt. O. G. E. Simpson retires, receiving a gratuity.

ARMY RESERVE OF OFFICERS.

Maj.-Gen. J. J. Gerrard, late R.A.M.C., having attained the age limit of liability to recall, ceases to belong to the Res. of Off.

ROYAL AIR FORCE.

Flying Officers G. M. Anderson and B. L. Edwards are promoted to Flight Lts.

INDIAN MEDICAL SERVICE.

Lt.-Cols. J. D. Graham and M. MacKelvie to be Cols.

Capt. Sukumar Nag to be Maj.

Officers relinquishing their temp. commns.: Temp. Capt. Kongattil Madhava Menon and Temp. Lt. J. T. Fernandez.

Lt.-Col. E. F. Harvey retires.

Maj. J. A. Shorten has been appointed Professor of Physiology, Medical College, Calcutta. Maj. W. C. Paton has been appointed to act as District Medical Officer, Malabar District, and Superintendent, Headquarter Hospital and Mental Hospital, Calicut, vice Lt.-Col. A. P. G. Lorimer, granted leave. Dr. Baldhadra Singh, Civil Surgeon, has been posted to Mirzapur. Capt. S. D. Gupta to be Second-in-Command, Indian Military Hospital, Nowshera, vice Capt. W. D. B. Read, vacated. Maj. R. F. Barnsley to be Officer Commanding British Military Hospital, Gharial, vice Maj. E. V. Whitby. Maj. C. Wilson to officiate as Officer Commanding British Military Hospital, Peshawar, vice Lt.-Col. P. C. Douglass, appointed officiating A.D.M.S., Peshawar District. Maj. K. K. Chatterjee, Additional Surgeon, Out-patient Department, Medical College, Calcutta, to be Honorary Assistant Surgeon, vice Rai Upendra Nath Brahmachara Bahadur, retired. Lt.-Col. W. J. Powell, Inspector-General of Prisons and Officiating Director of Public Health, Central Provinces, has been appointed Civil Surgeon, Pachmarhi. Maj. R. N. Kpadia to officiate as Officer Commanding, Combined Indian Military Hospital, Kohat. Dr. Lhawja Moinuddin, Director, Educational and Sanitation Department, Dr. Hurdiker, Dr. Sureti, and Dr. Clarke have been appointed delegates to attend the Seventh Congress of Tropical Medicine to be held at Calcutta in December.

Correspondence.

"Audi alteram partem."

ALKALI TREATMENT OF SCARLET FEVER.

To the Editor of THE LANCET.

SIR,—I was interested in Dr. E. H. J. Berry's article on this subject in THE LANCET of Oct. 22nd. As prominence has been given to this method of treatment lately some results I obtained four years ago may be of interest.

Dr. Berry assumes the toxic origin of scarlatinal nephritis and he has found that the administration of alkalis neutralises the effects of this toxin. He does not, however, indicate what he considers the nature of the toxin to be or the modus operandi of the alkalis. The toxic theory is generally accepted, but scarlatinal nephritis has also been attributed to the direct action of germs themselves and streptococci have been found to be present in the kidneys post mortem. Now it is well known that in cases of *B. coli* cystitis, where infection has occurred from below, a condition frequently met with in cases of puerperal infection, that the rapid change of the reaction of the urine from acid to alkali then back again to acid and so on, by the alternate administration of large dose of alkali and acid by the mouth the condition is quickly cured. In these cases the vitality of the organisms is apparently damaged by the rapid changing of the pH of the medium in which they are existing—viz., the urine—and are rapidly destroyed. This supposition is further supported by the fact that the treatment is only satisfactory if undertaken in the very early stages of the infection.

With such cases and the possibility that scarlatinal nephritis might be caused by the action of micro-organisms on the kidney in mind, I thought that if such were the case and if this treatment could be applied to scarlatinal nephritis the same results might be obtained. Two conditions would require to be fulfilled, the case would have to be treated early, and it would have to be possible to change the pH of the blood rapidly. Nephritis is, nowadays, a comparatively rare complication of scarlet fever; I was, however, able to obtain eight cases in a fairly short time. They were all hospital patients where the urine was tested every 12 hours, so treatment could be started within a few hours of the onset of symptoms. Without making any comment on the classification of nephritis I omitted the late albuminurias and only selected those cases which were frankly acute with a febrile reaction, diminished secretion of urine, albumin, blood and casts, no cases of the type showing œdema as the first symptom presented themselves.

In each case the urine at the onset was acid to litmus. Under these circumstances my practice was, in cases over 5 years of age, and only one was under this, to give sodii bicarb. in doses of 60 gr. every four hours for four doses or less if the urine became alkaline before; it was usually alkaline after the third dose. The reaction of the urine was noted each time it was passed and if scanty or difficult to obtain the patient was catheterised. In one patient under 4 years of age the dose was sodii bicarb. 30 gr. four-hourly; the urine became alkaline after the fourth dose. When the urine was definitely alkaline to litmus the patient was left for 24–36 hours, and if the urine was not then acid, acid sodii phosph. was given, when definitely acid alkalis were again administered, this time in smaller doses, until the urine became either alkaline or amphoteric; the treatment was then stopped.

The following notes briefly indicate the results obtained:—

In four cases the temperature was normal and the urine normal in quantity and perfectly free from albumin and blood on the fourth day after treatment was started. In one case the above results were obtained on the fifth day. In one case the temperature rapidly subsided and the blood cleared, but there was a faint trace of albumin until

ighth day. In one case a very faint trace of albumin emained for three weeks, and one case did not respond t all. This patient was a boy aged 12 years, who had a istory of kidney trouble and œdema several years before. 'wo of the patients developed rashes during the alkali reatment, one a blotchy erythema and one an urticarial ruption.

I am in no way pressing the theory of direct acterial action as the cause of scarlatinal nephritis. mentioned the matter in order to indicate the train f thought that prompted me to try the treatment. have no experimental evidence to offer in support of uch theory. I was unable at the time to make any aboratory investigations apart from microscopical xamination of the urine, consequently I have no vidence that the change in the pH of the blood was f sufficient degree or took place sufficiently rapidly o damage the vitality of any organism even had uch been acting locally, as in the cases of cystitis. t was my intention to make further observations, ut unfortunately during the last three years no pportunity has presented itself.

Dr. Berry is rather dogmatic in his conclusions, for must be remembered that 70–80 per cent. of scarlet ever patients will recover without any serious com- lication provided that they are suitably dieted and roper attention is paid to the condition of the throat. he statement "It seems obvious that alkalis should e given all the time the patient is considered infec- ous" appears to me to be somewhat exaggerated. ssuming a toxic cause for nephritis, then in five of y acute cases all that was necessary was the dministration of 190–240 gr. of sodii bicarb. within period of 12 hours to neutralise the toxic effects, r as soon as the urine was alkaline to litmus I llowed it to become acid again, and during this eriod there was no exacerbation of symptoms. ontinuous administration does not appear to have een indicated in these cases; again, in some of Dr. erry's own cases complications apparently occurred hile the urine was actually alkaline.

There seems to be room for further investigations ong such lines as: Assuming there is a scarlatinal oxin, in what way do alkalies render it inert? What e the indications for the administration of alkalis? hich is the best preparation to use and what is the ptimum dosage? Work along these lines would obably yield better results than the substitution of ie empirical method for another.

I am, Sir, yours faithfully,

H. J. PHILLIPS, M.D., B.Sc.

Oldham, Oct. 24th, 1927.

To the Editor of THE LANCET.

SIR,—The beneficial effects from the use of large oses of alkali in the treatment of scarlet fever, corded by Dr. Berry, prompts me to write this note. have for some time past been watching my cases, om the point of view of acidæmia and alkalæmia, id find the investigation most helpful. The former ndition I have referred to in former publications [1]; ie latter I am at present investigating, and find it not frequent (including the alkalosis that is already cognised as being present in acute high intestinal bstruction).[2]

The importance of the hydrogen-ion concentration the blood in its relation to disease was brought home me by a paper by Ellice Macdonald, of Philadelphia, n Chemical Aspects of Life and Disease,[3] in hich he points out that not only can the acid or kali state of the blood by itself cause ill-health, but iat they can predispose to certain illnesses—the pe of which varies with the underlying blood state. o put it shortly, he has shown by X ray meals of ie gastro-intestinal tract (postural tone) that the nooth muscle reaction, as he calls it, varies according as the blood swings to the acid or alkaline sides. In the former (acid) type the vagus autonomic system is in preponderance; in the latter (alkaline) the sympathetic is in predominance. Amongst the acid type he groups most infections; of which scarlet fever with its great tendency to acidosis, as pointed out by Dr. Berry, is one. Here, therefore, we find a rational explanation of the reason why alkalies are so beneficial—viz., that the blood state which predisposed patients to scarlet fever was already an acid condition of the system, with vagus preponderance, and that this acid state was increased by the scarlet fever organism. The use of the alkaline salts of potassium in these cases may not be without significance, as in another paper Macdonald [4] shows that potassium chloride is a stimulant to the sympathetic nervous system. This view of disease seems to me to promise a fruitful line for investigation.

I am, Sir, yours faithfully,

Darlington, Oct. 24th, 1927. R. CHALMERS.

[1] Accidental Hæmorrhage and Placental Infarction, R. halmers, Brit. Med. Jour., 1926, i., 807.
[2] Alkalosis: Treatment by Ammonium Chloride per Rectum nd Concentrated Intravenous Saline, R. Chalmers, THE LANCET, 926, ii., 1267.
[3] Chemical Aspects of Life and Disease, Ellice Macdonald, .Y. Medical Record, Oct. 20th, 1926.

SOME CASES OF ERYTHEMA NODOSUM.

To the Editor of THE LANCET.

SIR,—The occurrence of three cases of erythema nodosum in my practice early this year induced me some months ago to collect all the cases I had seen since 1918, and I was therefore particularly interested in Dr. Mitman's excellent account of a small outbreak of this malady and the lucid review of the situation in THE LANCET of Oct. 8th (pp. 751 and 761). I had come to the conclusion that erythema nodosum was a manifestation of what I am in the habit of calling by the handy name of "tonsillar influenza"—a type of tonsillitis which occurs during "influenza" epidemics. Since August, 1925, this type of influenza has been endemic in my practice (and I believe all over the country), and five out of the eight cases described below have been seen since April, 1926. Other interesting complications of this type of tonsillitis have been pulmonary infarction, "nephritis," "pyelitis," "hæmaturia," and unilateral effusion of the knee (non-rheumatic). I find that the occurrence of erythema nodosum coincides with the other complications, and whenever I see a case of the former I am on the look-out for cases of the latter.

The following are the histories of the eight cases; I refer to the pulmonary and renal cases seen about the same times.

(1) F., 18. Seen 8/5/20. Diagnosis: erythema nodosum. I only questioned the patient as to whether she had had rheumatism, and not realising the importance of tonsillitis I do not remember if the patient had had a sore-throat. My books show that tonsillitis was very prevalent at the time. I saw a case of pulmonary infarction following tonsillitis on May 8th and a case of puerperal cerebral embolism on May 12th.

(2) F., 27. Seen 1/11/20. Labelled "tonsillitis and erythema nodosum." Tonsillitis prevalent. No renal or pulmonary infarcts until following month.

(3) F., 20. Seen 13/2/25. Influenza epidemic. Labelled "erythema nodosum following sore-throat." Case of pyelitis on Feb. 9th, and two cases of pulmonary infarction on Feb. 24th and several in ensuing weeks.

(4) F., 29. Seen 31/3/26. Influenza prevalent. She had influenza and sore-throat. Later, jaundice was followed by severe pains in the legs and erythema nodosum was marked on April 12th. I had an epidemic of post-influenzal nephritis in March, saw a case of "hæmorrhagic nephritis" on April 5th, cases of pulmonary infarction on March 30th and April 8th (both following tonsillitis), and a post-operative pulmonary embolism on April 8th!

(5) M., 10. Seen 1/10/26. Tonsillitis. Oct. 5th: erythema nodosum. On Oct. 3rd I saw a case of pulmonary infarction and on Oct. 6th a case of renal infarction. Both were endocarditis patients suffering from influenza.

(6) F., 23. Seen 22/1/27. Influenza epidemic. Erythema nodosum and slight erysipelas of face following sore-throat. Case of influenzal nephritis on Jan. 26th, cases of pulmonary infarction (influenza and dilated hearts) on Jan. 18th and 31st, and a case of cerebral embolism (V.D.H.) on Jan. 23rd.

(7) F., 28. Seen 15/3/27. "Influenza cold." March 22nd: "neuritis in legs." March 24th: "erythema nodosum."

[4] Chemical Aspects of Life and Disease (continued), Ibid., July 7th, 1926.

The temperature kept up for three weeks but no explanation of it was made. This patient two years previously had a suppurating cervical gland, presumably tuberculous.

(8) F., 34. Seen 16/4/27. Influenza. Said she spat up something like jam (? small infarct) on 18th. On April 26th there was an extensive eruption of erythema nodosum on the fronts of the legs and backs of the arms. This patient had an attack in 1920 (same as No. 2), so that second attacks do occur. On April 13th an endocarditis patient with influenza and tonsillitis (her healthy sister had the same complaint) had a renal infarction.

All the patients were healthy subjects except No. 7, and in none of them was there the slightest evidence of an attack of true rheumatism. Probably the old observers confused post-influenzal neuritis with acute rheumatism—a mistake which is not uncommon to-day.

It is curious that seven of the cases were females. It is also curious that not a single case was seen in the extensive epidemics of 1918, 1919, 1922, and 1924. Renal complications were also rare in these epidemics. It seems, therefore, that there must be a particular germ or group of germs which favour the occurrence of these complications.

Is it possible that the eruption in these cases is due to thrombosis or embolism in the cutaneous vessels? It sounds far-fetched that such should occur in an area of free anastomosis such as the skin. Yet the site of the eruption—the fronts of the legs—is generally reckoned an avascular region.

Apropos of Dr. Mitman's use of the term "pseudo-lobar" pneumonia, I am of the belief that these cases are very often not pneumonia at all but pulmonary infarctions which have been mistaken for pneumonia. Without the appearance of characteristic blood sputa the diagnosis is extremely difficult.

I am, Sir, yours faithfully,

AMBROSE W. OWEN,
Hon. Surgeon, Aberdare General Hospital.

Oct. 27th, 1927.

RADIOPACITY OF GLASS.

To the Editor of THE LANCET.

SIR,—I am at present engaged in determining the opacity of various substances to X rays. The results of my investigations are not yet ready for publication, but as Miss Mann in her article on the Treatment of Perforating Injuries of the Eye in THE LANCET of Oct. 29th, says, ". . . even lead glass fragments may be localised, but the lighter forms of glass are transparent to the rays," I thought the following might be of interest.

I obtained specimens of various glass, consisting of pieces from an old X ray plate, a bottle, a window, an electric light lamp, a test-tube, and a piece of corrugated roof glass. I arranged these on an X ray film and took a radiogram. I then buried them in the middle of a piece of raw beef 5 in. in thickness and made a second exposure. All the glasses cast shadows. The pieces from the electric light lamp and the test-tube (the thinnest glass I could obtain) cast faint but nevertheless unmistakable shadows, even when embedded in the beef. I obtained these shadows when I used either hard or soft rays, and I used the ordinary exposure that I would use in taking a radiogram of an arm.

On consulting a book on glass-making I learn that the ordinary flint crystal or table glass contains oxide of lead and bottle glass oxide of iron. X ray books as a whole are curiously reticent as to the radiopacity of glass, and those that do mention it make contradictory statements. Holmes and Ruggles in their book say that fragments of glass may be missed, even in the thin tissue of the finger, while Bythell and A. E. Barclay state "even ordinary flint glass throws a shadow sufficiently heavy to be visible on the plate, provided that it is embedded reasonably near the surface," but I can find no reference to the visualisation of a piece of glass 2½ in. from the surface.

I am, Sir, yours faithfully,

Dublin, Oct. 29th, 1927. SYLVIA B. WIGODER, M.D.

A CASE OF CEPHALIC TETANUS.

To the Editor of THE LANCET.

SIR,—Dr. Macneill Simpson takes me to task i your issue of Sept. 17th for exaggerating the rarenes of cephalic tetanus by writing that "tetanus limite to the head and neck is very uncommon." Perhap I have been misled by my own experience to thin it more uncommon than it is, for the case describe by Dr. J. P. Fitzpatrick and myself in THE LANCE of Sept. 10th is the only one of the kind which I hav seen during 25 years' service in the Eastern tropic Judging, however, from such records as I have read it is rare for the spasms, in so severe a case, to b confined to the head and neck. In one of the fou cases described by the late Sir George Humphrey in the article cited by Dr. Simpson, there were fr quent severe spasms of the body muscles; in anothe there was opisthotonos; and, in the two remainin cases, the abdominal muscles were involved.

In our case there was, unfortunately, but little t be hoped from treatment; the patient could n swallow, and, as Sir George Humphrey wrote Allbutt and Rolleston's "System of Medicine," whe food cannot be swallowed recovery rarely tak place, and nothing can be relied upon even to pos pone the fatal event." Tetanus antitoxin was give from the day of the patient's admission to hospita though little benefit could be expected from it; fo as far as could be made out from the somewhat vag history, the first symptoms had appeared about week before. Rectal injections were returned at on unless the patient was kept under an anæstheti The wound was healed and no local interferen was indicated. Apart from the administration antitoxin, treatment was limited to attempts get fluids and carbohydrates into the patient, ar to alleviating his sufferings with sedatives ar anæsthetics.

There was no asphyxia or indication for the trache tomy which gave relief in one of Sir George Humphrey cases.—I am, Sir, yours faithfully,

WILLIAM FLETCHER.

Kenilworth, Warwickshire, Oct. 27th, 1927.

RECTAL INJECTION OF VOMITED BILE.

To the Editor of THE LANCET.

SIR,—In THE LANCET of August 13th last, Mr. St. Leger Brockman brought forward evidence show that the toxæmia and vomiting which accompa intestinal obstruction were mitigated by rec injection of human bile diluted with saline. A p portion of cases of gastro-enterostomy vomit b after operation. Usually this ceases within 48 hou but the longer it lasts the more anxiety it caus To return this bile mixed with rectal saline is at on so simple, convenient, and harmless, that if it is n to become an immediate routine procedure, it c tainly warrants an extended trial. Personally, I ha been favourably impressed by the method, and belie it will reduce the number of cases requiring gast lavage. I am, Sir, yours faithfully,

Birmingham, Oct. 29th, 1927. HAMILTON BAILEY.

DIABETES WITH RENAL GLYCOSURIA.

To the Editor of THE LANCET.

SIR,—Abnormal permeability of the kidneys glucose is not very uncommon in diabetes, and, Dr. Voigt (THE LANCET, Oct. 29th, p. 916) has fou its presence complicates the insulin treatment. a rule, the lowering of the renal threshold, in m experience, is associated with, and appears to dependent upon, a low calcium content of the blo for when the calcium is raised to the normal le by treatment glycosuria does not occur unless hyp glycæmia is present. The defect of calcium metaboli responsible for the condition probably arises fr disturbances in the functions of the parathyro

used by chronic toxæmia, most likely in Dr. Voigt's se of intestinal origin, hence the administration of rathyroid with calcium salts and removal of the use of the toxæmia bring about more permanent provement than calcium salts given alone, as pointed out some years ago ("New Views on abetes," 1923, p. 392).

The failing sight, mentioned in Dr. Voigt's case, interesting; I have noticed that disturbances of ion are more liable to occur in diabetics with a r percentage of calcium in their blood than in hers, and that measures which increase the calcium quently give better results than simple treatment the defect of carbohydrate metabolism.

I am, Sir, yours faithfully,

P. J. CAMMIDGE.

ottingham-place, Marylebone, W., Oct. 29th, 1927.

PAYMENT TO HOSPITALS FOR MOTOR ACCIDENTS.

To the Editor of THE LANCET.

IR,—I regret that Dr. Fothergill, whose letter ears in your issue of Oct. 29th, has been misled some loose wording in a printed report. Of course is right—the only contracts are as between the rance company and the patient on the one hand the practitioner and the patient on the other. ever said that the practitioner could send his bill he insurance company. But what we do hope is , by using the machinery of the paying ward, a can be sent in which will eventually take its place ng the other expenses forming the basis of the im's claim upon his insurance company.

s a matter of common practice, based entirely upon venience, a practitioner's bill may occasionally be direct to an insurance company, but nobody ought uppose that this recognises any contract between e parties. So much of what insurance companies out is based upon claims which would not be lly binding were the matter brought into court. do we imagine that the companies will treat the ng ward of a hospital less generously than they in the habit of treating doctors in such cases, the position is established of these wards being led to make contracts with patients which are not ible on the part of a voluntary hospital under nary conditions.

bviously the matter is of growing importance to lospitals, and it is essential that the legal position ld not be misunderstood from the start.

I am, Sir, yours faithfully,

PHILIP T. CARILL-WORSLEY,
Vice-Chairman,
Norfolk and Norwich Hospital.

t. 29th, 1927.

MISLEADING QUALIFICATIONS.

To the Editor of THE LANCET.

R,—In the course of his reply to critics, "Ethics" s: "In the surgical world the English Fellowship cognised to be the highest surgical distinction," adduces as evidence for this statement, "it is a bulsory passport to admission to honorary surgical intments in all teaching English hospitals," ng "many Edinburgh and Irish Fellows avour to obtain it after acquiring their own." matter of fact, in Scotland and Ireland the ish and Irish Fellowships are compulsory pass- for similar posts. Is it to be inferred that ish and Irish hospitals are not equal to those of and, or their staffs not as efficient? Many ws of all the Colleges take the M.D. and M.R.C.P. as higher distinctions but as additional fications.

to the F.R.C.S. Edin. not being a purely cal distinction, I do not agree with "Ethics." ndidate for the Edinburgh Fellowship has to a special examination in surgery, plus a special ination in the subject he professes, and if he ds to practise operative surgery he has to ate on the dead body. Surely this is sound. An English Fellow may practise gynæcology or dentistry without having been tested in these subjects in his Fellowship examination. In this respect I consider the Edinburgh Fellowship is in advance of the English. True there is no "primary" in the Edinburgh diploma; but the English "primary" is not surgery, and the intending Edinburgh Fellow has to satisfy the examiners as to his knowledge of anatomy—no easy matter.

Surely it is really a matter of custom and possibly—I have not verified the fact—the English College may be senior. F.R.C.S. stands for Fellow of the Royal College of Surgeons without specifying which. Those of us who hold the Fellowship of Edinburgh and add Ed. do so because we are proud of it and do not wish any mistake made. Let the F.R.C.S. England add Eng. and all will be well.

I am, Sir, yours faithfully,

Oct. 29th, 1927. F.R.C.S. EDINBURGH.

*** We have received other letters in reply to "Ethics." The writer of one of the most vigorous of these holds the Double Fellowship, but has omitted to enclose his card.—ED. L.

REGISTRATION OF NURSING HOMES.

To the Editor of THE LANCET.

SIR,—We feel that the public (your readers) are not sufficiently aware of the dangerous provisions that have been inserted in the "Nursing Homes (Registration) Bill." These place the duty of inspecting nursing and maternity homes in the hands of the smaller local authorities (in many cases the rural or district councils), and propose the repeal of Part 2 of the Midwives and Maternity Homes Act, 1926. This Act, which has been working satisfactorily since passed, placed the inspection of maternity homes under the same authority as the midwives, the county councils, and the county borough councils. If the new Bill, as amended, is passed, the result will be—dual inspection, the home being under one authority and the midwives working in it under another, with conflicting rules and regulations; the possibility, so undesirable in administrative work, of the influence of personal friends and vested interests; and the certainty that the smaller authorities would not be able to provide well trained, whole-time inspectors with expert knowledge.

I am, Sir, yours faithfully,

L. RAMSDEN,
President, Midwives' Institute.

12, Buckingham-street, W.C., Oct. 31st, 1927.

ROYAL MEDICAL BENEVOLENT FUND.

AT the last meeting of the Case Committee 50 cases were considered and £648 was voted to 44 applicants. Below is a summary of some of the cases relieved.

Widow, aged 67, of M.D. who died in 1894. Only income 10*s.* a week from Government for son killed in the war. Son, aged 35, lives at home and the responsibility of the home falls on him; at the present time he is only earning £2 a week after being out of work for some time. Applicant has had many money losses and, as she has to keep her daughter at home to look after herself and the cottage, asks the Fund for help. Rent of the cottage, 10*s.* a week. Voted £24 in quarterly instalments.

Widow, aged 47, of M.R.C.S. who died last month. Late husband was in receipt of a grant from this Fund of £40, £20 of which had been paid. Applicant asks that the balance may be transferred to her. The Committee acceded to her request.

Daughter, aged 52, of M.R.C.S. who died in 1907. On the death of her father took a boarding-house which she was obliged to sell up in 1925 owing to ill-health. On regaining her health took up domestic work, and in June this year took another house in which she has let unfurnished rooms; she retains two for herself to carry on a sewing business. Voted £25 to meet rates and to buy some furniture for her room.

Widow, aged 59, of L.S.A. who died in 1914. Left with five daughters, two of whom are black-and-white artists, one a nursery governess, and the two youngest modellers. Owing to trade depression she has not been able to meet rates, and £20 was voted to meet these and other debts.

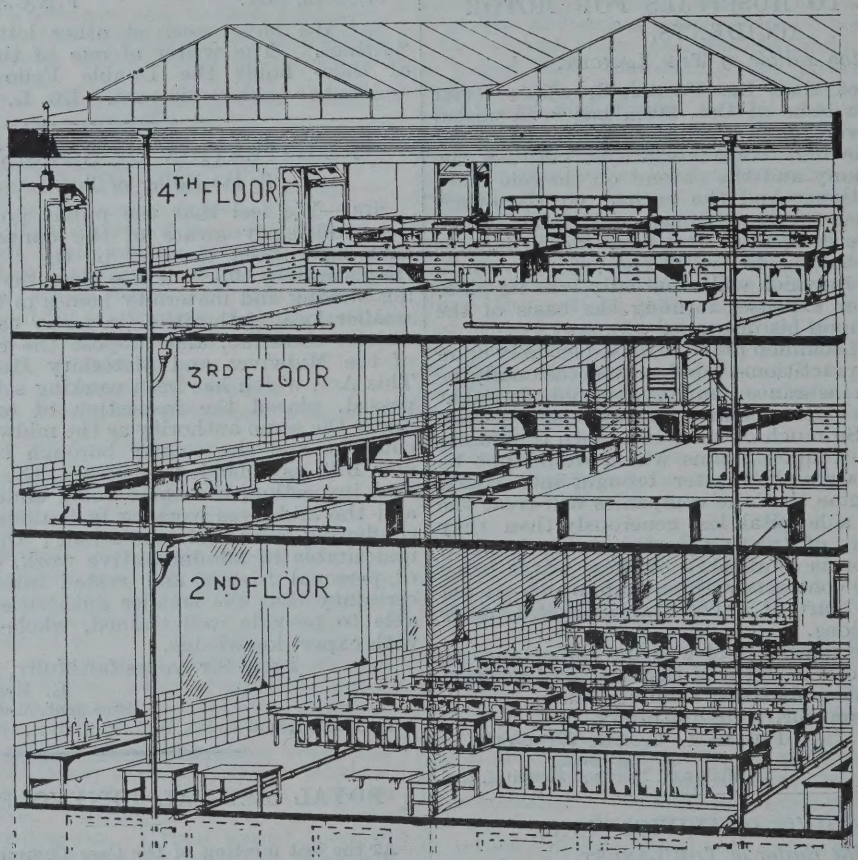
Subscriptions may be sent to the hon. treasurer, Sir Charters Symonds, at 11, Chandos-street, Cavendish-square, London, W. 1.

WELSH NATIONAL SCHOOL OF MEDICINE:

NEW MEDICAL UNIT LABORATORIES.

THE new laboratories of the medical unit of the Welsh National School of Medicine have just been completed at the Cardiff Royal Infirmary. They have been erected on the site of the old casualty department of the hospital, which opened out of the south side of the main hospital corridor between the entrance block and the Insole ward block. The cost of the building and part of the equipment have been provided through the generosity of the Rockefeller Foundation, New York.

The laboratory block consists of ground, first, second, third, and fourth floors; an internal staircase in the new block, on the side adjoining the hospital wards of the unit, gives access from floor to floor. Owing to the difference in levels of the new floors from those of the hospital, the five storeys of the laboratory block occupy the same height as the four main hospital storeys; there is intercommunication between the new staircase landings and the hospital corridors on the ground, first, second, and third floors of the hospital. There are, in addition, external iron escape ladders on the north side of the laboratory block from the fourth floor to the third floor roof below, from which the hospital second floor corridor may be reached through a window; and from the second floor to the roof over the main hospital corridor on the ground floor below. Thus, in the event of a fire filling the new staircase with smoke, there is an alternative route to the ground from every floor.



The Medical Unit Laboratories, Welsh National School of Medicine. Showing in detail the lay-out of the three upper floors.

The new block is lighted from the south on the ground floor, and from the north, south, and west on all the upper floors; and in addition the second and fourth floors have skylights, so that every laboratory and room has ample illumination.

Externally, the walls are faced with Cattybrook bricks from Bristol, similar to those used throughout the hospital. The stone sills, strings, and copings are Forest of Dean stone. All floors are of the "Kleine" fire-resisting reinforced terra-cotta construction, as are also the roofs. The stairs are of patent stone, with carborundum treads. Internally, the floors are covered with teak blocks on the ground floor and with cork parquet on all the other floors except in the avatories and store cupboards off the stair landings, where they are of patent stone. The walls have tiled dadoes on t staircase and on all floors except the first, where the st rooms are situated. Above the tiled dadoes the walls finished in Keene's cement and distempered.

All floors are heated by hot-water radiators connected a new calorifier installed in the old basement beneath t block. This calorifier is heated by steam taken from t main boilers of the hospital. In addition, the staff roo on the first floor have gas fires. All the laboratory benc are of oak with teak tops, fitted with gas and electric plu and water, and the whole building is lighted by electrici Separate electric and gas mains supply this block, and water-supply comes through a separate meter.

General Arrangement of the Laboratories.

The general arrangement of the laboratories is follows.

On the ground floor folding teak doors open fr the main hospital corridors into a small lobby fr which the staircase rises to the upper floors. T ground fl contains t research l oratori fitted up e xperimer work and photograp dark ro One labo tory is 27 by 21 ft. 6 and the o 21 ft. by ft. Both 12 ft. h In the pa tion wall tween the there is a v roller shu which ca raised or ered at so as to vert the laborato more or into on requir Ample tric po and li plugs are vided in ceiling ar the walls gas, ele plugs, water tap fixed on benches the win Large

with hot and cold water are also fitted separately the benches. A three-way cable and telep communicating with the medical unit wards are for electrocardiographic work, and a floor plug lead to earth is fixed.

On the *first floor* are the staff rooms and offic 8 ft. 6 in. high. The professor's room is 21 ft. 6 i 21 ft.; the other rooms are 21 ft. 6 in. by 1 21 ft. by 15 ft., and 17 ft. by 16 ft. 6 in. The fessor's room is in telephonic communication all the floors, and an outside telephone as well intercommunicating departmental telephone is inst in a telephone box in the office. On the landi this floor are a lavatory and three store rooms.

On the *second floor* are the two teaching la tories for students. One, the clinical pathology bacteriology laboratory, measures 37 ft. by 21 ft. high, and is lighted on the north, south, and sides. Bench accommodation for 30 studen provided. The benches face north, and a sky

nning along this aspect of the laboratory over the ndows, gives additional lighting. Behind the idents' benches there is a free floor space of ft. 9 in. by 13 ft. 7 in. Benches for sterilisers, ntrifuges, shakers, &c., are provided and large shing-up sinks fitted.

The other laboratory on this floor is the students' oratory for biochemistry. It measures 37 ft. by ft. by 12 ft. high, and is lighted on the north and ith by the ordinary windows, but there is also a ylight running along the north side of the laboratory, ur large double chemical benches are fitted, pro- ling accommodation for 32 students if required; ge washing-up sinks, fume cupboards, balance nches—specially lit—benches for centrifuges, ikers, &c., and a draught cupboard for stills, ffle-furnaces, &c., are fixed in different parts of laboratory. A polarimeter room, lavatory, and re rooms are located on the staircase landing of s floor.

The *third floor*, which is 9 ft. high, contains research oratories for clinical pathology and bacteriology, l serological work. The former measures 28 ft. 22 ft. and is lighted on the north, south, and west lls; in addition to fitted benches all round, two vable tables are provided and electric light and ver plugs are fixed over them. The serological oratory measures 17 ft. 8 in. by 14 ft. 6 in. and is ited on the south wall. A bench with thick riolite top is fixed along the south wall and benches baths, &c., are also provided. A media-preparation sterilising room, 21 ft. by 13 ft. 6 in., is also included his floor. Opening off the adjoining landing are a (incubator) room, 9 ft. 4 in. by 7 ft., electrically ted, and a store room for refrigerator and large trifuge. There is also a lavatory on this landing.

The *fourth floor* consists of one large biochemical arch laboratory measuring 43 ft. 6 in. by 28 ft. 6 in. s lighted on the north, south, and west sides and two large skylights. Four large double research mical benches are fitted each 12 ft. by 4 ft. 6 in. 3 ft. high—and in addition there is another chemical ch running along the south side of the laboratory. ance benches, specially illuminated, are fitted g the north wall, and six fume cupboards, one ially enclosed draught cupboard, and benches electric shakers, stirrers, centrifuges, &c., are vided.

special feature of the laboratory block is its close ximity to the medical unit wards. A doorway from internal staircase of the laboratory opens on to top floor corridor of the hospital and is within ards of the medical unit wards.

The architect, Mr. E. Stanley Hall, F.R.I.B.A., e firm of Edwin T. and E. Stanley Hall, London, ently gave effect, with close attention to detail, he wishes of Prof. A. Mills Kennedy, the director e medical unit, and both deserve congratulations he result of their labours.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

Local Appointments.

is satisfactory to note that the outcry against new method of appointing the officers of local orities is receiving no sympathy from responsible sters. Replying to a question in the Dail last President Cosgrave took the opportunity of nding the procedure followed by the Appointments missioners. He said that it had not been the tice of the Local Appointments Commissioners to ish a list of the qualifications of unsuccessful idates for vacant posts. In settling their practice objects of the Commissioners were primarily to re the election of the best qualified candidate, and ntally to relieve members of local authorities the embarrassment caused in the past by npts on the part of candidates to advance their candidature through the exercise of local influence. The submission of the names of all qualified candidates was not calculated to achieve these objects, and if any name other than that of the best qualified applicant were submitted it would be very difficult, if not impossible, to justify the exclusion from the list of any qualified candidate. Furthermore, if the names of the qualified candidates were forwarded in their order of merit those candidates who had failed to obtain a high place might with reason be apprehensive lest the publication of such a list would adversely affect their professional prospects.

In a letter to the daily papers, published on Oct. 31st, Dr. T. Hennessy analyses the qualifications of three candidates recently appointed to dispensaries in the county of Dublin. These appointments had been the mark of severe—and, as Dr. Hennessy shows—unwarranted criticism by one of the local authorities concerned. These candidates all had good records, as he showed, but the nature of the criticism made it clear that none of them would have had any chance of election under the old system unless, in addition to his professional qualifications, he had possessed local or family influence with the members of the local authority. A system which makes it possible for such candidates to obtain appointment on their merits alone is a great reform in administration.

THE NEW R.A.F. HOSPITAL.

EQUIPMENT AT HALTON.

ON Monday last the Royal Air Force's hospital and nursing sisters' quarters at Halton, near Wendover, were formally opened by Princess Mary Viscountess Lascelles.

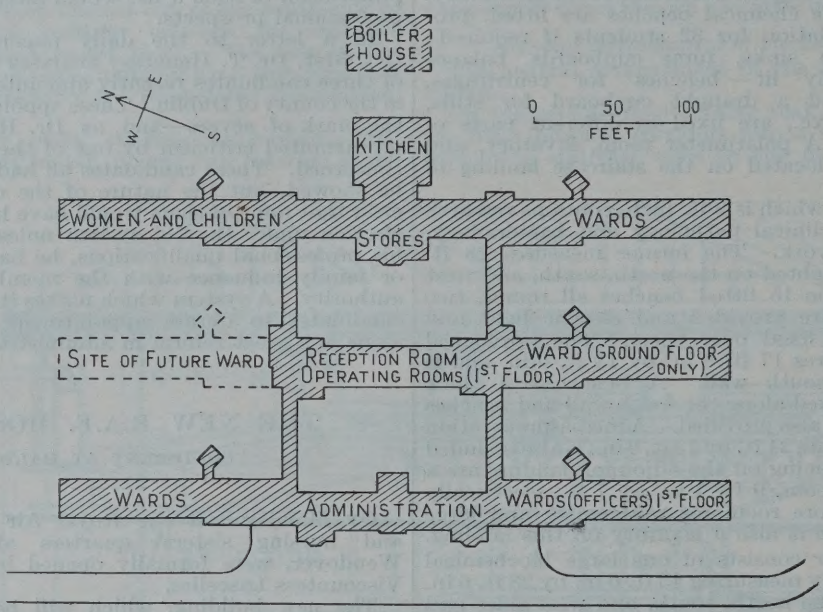
The new building, which will be called Princess Mary's Royal Air Force Hospital, is built in two storeys of pleasant-coloured red brick. It is sheltered from the north and east by a ridge of the Chilterns and overlooks a beautiful valley. Its position as well as its construction ensure that ventilation—the first need of a hospital after shelter—shall be adequate. At present there is accommodation for about 200 beds, but there is room for expansion. The general design may be seen in the plan which we reproduce below. There are a medical and an acute medical ward, a surgical and an acute surgical ward, a mental ward, two wards for apprentices, a section for officers (some small rooms, a ward for a dozen patients, a dining room, a library, and a billiard room), a section for women and children, and a labour ward.

The ward units are good. On one side of the entrance is the sister's room with an ice-chest, the scullery with a gas oven and rings, and a store; on the other side is a special ward with one or two beds, a recess with a steam steriliser for instruments, a recreation room, and annexes with three water-closets (elbow rests to each), a lavatory and a bath, also a room for bedpans with a large slab for scrubbing mackintoshes. All the taps are white; there is little or nothing to polish. The ward itself has 23 beds, painted buff with a slightly darker dado toning with the rubber carpet on the floor, and a dull red surround to meet the rounded edge of the walls. Windows alternate with the beds; each is iron-framed, in three sections and pivoted horizontally, so that ventilation is easy. The window-sill is of white enamelled rounded bricks, and below each is a sufficient radiator, so that draughts are not felt. These radiators are the principal source of heat, but there are also two coal fires (whose smoke escapes through floor ducts) to add to the patients' comfort in cold and stormy weather. Green curtains shade the windows. Lighting is central, by eight large lights over the foot of the beds, but there are also movable lamps at the bed-heads. Each bed has a chair, and a bed-table with two shelves, and a rail at the back for the damp towel. The children's ward has a frieze

of grotesque animals—rather a breakaway from Government tradition.

The mental ward has been well planned. A spring bolt on the door of the padded room holds the door as soon as it is shut, and if the orderly cannot see all he wants through the window, he may slip on a strong chain and open the door without fear that the patient will push past him. Here is the detention ward which will be little used, for it is found that prisoners, if put on their honour not to give trouble, can as a rule be safely trusted in the ordinary wards.

Two large dining rooms are provided for convalescents; one of them is also a recreation room and has a piano, a gift from the sergeants' messes of connected stations, and the nucleus of a hospital library. There are two boilers; one heats the radiators, the other provides steam for cooking, sterilising, and heating water for the lavatories. Vegetables and puddings are cooked by steam, roasting and grilling is done by gas, and there is also a coal range. Vegetables are prepared for cooking outside the kitchen, across a yard, so as to keep dirt off the premises. At the hospital end of the kitchen is a large hot-plate, and beyond that a counter where the wards receive their diets in highly polished, covered boxes; in the wards the food is divided to the patients by the sisters. An ice-store below the dispensary is connected by a lift with the floors above. Passages throughout the hospital are covered with corticine, which makes for comfort and quiet; corners are everywhere rounded and there are few dust-traps. People always kick a swing door open. Here a rubber patch is provided for them to kick.



Plan of the R.A.F. Hospital at Halton.

The reception room at the main door has lavatory accommodation opening off it on one side, whilst on the other are the medical officer's rooms, one of which is fitted out for making examinations. In another part of the building are quarters for the orderly medical officer, and the commanding officer and his registrar. The staff have good offices and there are eight medical officers. The orderlies are well lodged, their rooms have fireplaces, and corticine on the floors. There are steel lockers for their clothes, and in suite with each room are w.c.'s, upright slab urinals, washing basins, and douche and slipper baths. The orderlies' kitchen and dining room are in another building. The sergeants have a very comfortable mess, whose rooms can be thrown into one for dances. The married quarters of the station are all around the hospital. They are cleverly planned so that rooms on the border between houses can be assigned to either as the families require.

Accessory services are the powerful X ray plant with its photographic rooms, the hospital clinical laboratory (the Central Air Force laboratory is close by, but independent), the electrical, massage, and gymnastic appliance rooms, and the ophthalmic room. The septic and aseptic operating-theatres on the first floor are painted in green. The north wall of the aseptic theatre is almost all glass, most of it single huge sheet affording a beautiful light. Ov the table is a new shadowless lamp. The lighting the theatre is double, and the constant glow of small red lamp shows that the emergency circuit ever available. The floor is terrazzo, very smooth a easy to clean, but with little strength in itself. Besi the theatre are rooms and a bath for surgeons, and t sisters have equal consideration. The new sisters' ho consists of 38 rooms with a small hospital for t sick. The quarters about 200 ya from the h pital, and th are rooms their cloaks each end of t building.

In the iso tion hospital some half doz observati rooms for t patients, ea entered o from the o air, but in walls are la glass panels p mitting t sister when one ward to k an eye on others. Separ from the m building is venereal secti 25 beds in a h very spars occupied, w the usual tre ment rooms. Every endeavour is being made to cases to report early so as to shorten the treatmer

The hospital has now been in use for nearly th weeks. Apart from the fact that the building not been wired for wireless whilst being erected, wh might have saved expense, it is difficult to find fa with the arrangements, for the planning has b most judicious. Nothing seems to have been was on ornament, but the appropriateness of everyth makes the place very handsome.

We offer our thanks to Wing-Commander W. Shorten, who is in command, for the trouble he t to show and explain the hospital to our representati

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MEDICAL CONGRESS IN EGYPT.—A congress to known as "Journées Médicales d'Egypte" is to held Cairo from Dec. 15th to 24th. The voyage and confer will involve an absence of from 20 to 22 days from Marsei French, English, Arabic, German, and Italian will be official languages used, and there will be an internati exhibition of arts and sciences as applied to medic surgery, pharmacy, and sanitary hygiene. Further ticulars may be obtained from Dr. Zeitoun, 32, Gay-Lussac, Paris (Ve).

CANCER RESEARCH HOSPITALS.—The governors Middlesex Hospital are appealing for the means of pla the old Cancer Charity, now renamed the Middlesex Ca Hospital, on a self-supporting basis and, if possible extending its accommodation. The charity was four 135 years ago. The governors feel that if cancer pati are to be induced to submit themselves to treatment in early stages of the disease the accommodation must increased.—At St. Mark's, City-road, E.C., the Lord M of London last week opened a new wing. The exten includes two wards which will increase the in-pat accommodation by 18 beds, making a total of 72, an patients' department, and nurses' quarters. The cost been £23,000, of which £3000 remains to be raised. It stated that medical men from all parts of the world com St. Mark's cancer research laboratories to study the met to the hospital.

Medical News.

UNIVERSITY OF CAMBRIDGE.—At a Congregation on t. 28th the following degrees were conferred :—

M.D.—C. E. Newman.

M.B., B.Chir.—G. B. Woodd Walker and G. A. Q. Lennane.

B.Chir.—F. H. A. Walker.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.—A ordinary quarterly comitia of the College was held Oct. 27th, the President, Sir John Rose Bradford, being the chair. The following candidates, having satisfied e Censors' Board, were admitted to the Membership :—

Drs. Ivan McDonald Allen, Doris Manning Baker, Donald Davidson, Henry Victor Dicks, Andraous Erian, Noel Trelawney Glynn, Wesley George Catchlove Godbehear, John Gerald Edward Hayden, Edward Humphry Vere Hodge, Eric Canton Seward, George Ernest Frederick Sutton, John Martin Twhigg, Lionel Ernest Howard Whitby, and Maurice Lindsay Young.

Licences to practise were conferred upon 175 candidates (3 men and 22 women) who have passed the final examina- n in medicine, surgery, and midwifery, and have complied h the by-laws of the College. The following are the nes and medical schools of the successful candidates :—

Mary E. A. Allen, Birmingham ; F. W. Allinson and S. W. Allinson, Univ. Coll. ; J. V. Almeyda, Bombay and London ; Joan Anderson, Manchester ; B. J. E. Anson, King's Coll. ; C. Arkles, Guy's ; M. I. Ashmawi, Cairo and St. Thomas's ; P. V. Bamford, Bengal and London ; O. A. Beadle, Oxford and Guy's ; W. J. H. M. Beattie, Cambridge and St. Bart.'s ; C. A. Bence, Cardiff ; F. W. Besley, Cambridge and London ; H. R. P. Boucaut, Adelaide and London ; A. R. Bowtell, Oxford and Univ. Coll. ; W. V. Boyle, Cambridge and London ; W. E. R. Branch, Univ. Coll. ; D. H. Brinton, Oxford and St. Mary's ; Ruth M. Brittan, Royal Free ; L. Brown, Cape and Guy's ; J. R. Buchanan, Univ. Coll. ; E. S. Caley, St. Thomas's ; C. S. Carter, St. Mary's ; B. W. Cartwright, Birmingham ; A. J. W. Chamings, Cambridge and St. George's ; W. A. Clark, St. Bart.'s ; E. Clayton-Jones, Cambridge and Guy's ; Amy G. Clogg, Cambridge and King's Coll. ; M. Coleman, Univ. Coll. ; M. Coll, Durham ; N. B. Colman, Witwatersrand and St. Bart.'s ; A. W. Cubitt, Oxford and King's Coll. ; E. G. C. Darke, St. Bart.'s ; Ethel G. Davies, Cardiff and Royal Free ; S. B. Davis, Oxford and London ; R. de Sousa, Bombay and London ; P. M. Deville, Guy's ; W. E. Dornan, Leeds ; C. H. Egan, South Africa and Guy's ; Antoinette H. P. Ellis, Charing Cross ; D. Ellis, Guy's ; S. Farfel, Witwatersrand and St. Bart.'s ; C. J. Farr, King's Coll. ; H. G. Floyd, Guy's ; Helen M. G. Foster, Univ. Coll. ; J. L. Franklin, Cambridge and St. George's ; L. W. Freeman, St. Mary's ; C. R. E. Freezer, Guy's ; T. O. Garland, Cambridge and Guy's ; S. Gifford, St. Thomas's ; Edith Giles, Charing Cross ; G. G. Gillam, Univ. Coll. ; Barbara M. L. Glover, Royal Free ; P. S. Goonewardene, Ceylon and Middlesex ; E. L. Graff, Cambridge and Guy's ; A. W. T. Green, Middlesex ; F. Grundy, Leeds ; Brenda G. Hallett, Royal Free and St. Mary's ; A. S. Hatch, Univ. Coll. ; W. J. Heely, Guy's ; R. A. Hill, St. Thomas's ; L. T. Hilliard, Cambridge and St. George's ; W. A. C. Horter, Middlesex ; Esther M. Hoskin, King's College ; G. McI. Housden, Guy's ; Lilian J. Hubble, Royal Free and King's Coll. ; E. C. H. Huddy, Guy's ; E. H. Hudson, Cambridge and Guy's ; W. F. Hudson, Guy's ; T. I. Hughes, Bristol ; F. H. Hunnard, Univ. Coll. ; W. A. Hutton, St. Bart.'s ; S. Inder Sen, Punjab and London ; G. L. M. Inkster, Oxford and Middlesex ; E. D. Irvine, Liverpool ; E. T. James, Cambridge and St. Bart.'s ; T. E. James, Cardiff ; B. R. M. Johnson, Middlesex ; R. E. Jones, Birmingham ; D. F. Kanaar, Guy's ; C. A. Keele, Middlesex ; W. R. Keizer, London ; Rachel I. Kessel, Charing Cross ; H. A. Kidd, St. Mary's ; K. Knowles, St. Bart.'s ; E. Landau, Cambridge and St. George's ; L. E. Lane, Cape and Guy's ; I. W. Lazarus, London ; J. T. Lewis, Cardiff ; M. J. Liberson, Durham and Middlesex ; A. W. Lilley, Manchester ; Edith G. Limmex, King's Coll. ; F. E. Lipscomb and D. H. Lloyd, Middlesex ; J. Lloyd, Cardiff ; A. Long, Leeds ; P. H. Loretz and W. S. McConnell, Guy's ; A. M. McMaster, St. Bart.'s ; H. I. Maister, Guy's ; H. E. Mansell, Oxford and St. George's ; Beryl L. Mappin, St. Mary's ; W. H. Miller, Guy's ; W. Milligan, Leeds ; D. P. Mitra, Harvard and Charing Cross ; R. V. Mone, Bombay and St. Thomas's ; A. M. A. Moore and P. H. L. Moore, London ; D. T. R Morris, Univ. Coll. ; T. C. Mort, Cardiff ; T. Morton St. Thomas's ; Gertrude M. Nicholson, Durham ; W. A. Nicholson, Cambridge and St. Bart.'s ; A. T. Pagan, St. Bart.'s ; W. R. S. Panckridge, Middlesex ; M. D. Patel, Bombay ; M. N. Patel and A. Peacock, London ; J. R. Peacock, Cambridge and St. George's ; G. M. Phadke, Univ. Coll. ; L. M. J. A. Pilot, St. George's ; G. W. Pimblett and D. Preiskel, St. Bart.'s ; W. J. E. Radford, Guy's ; P. R. Rainey, St. Bart.'s ; B. D. Rawlin, Sheffield ; B. R. R. R. Reddy, Mysore and Durham ; W. G. Rees, Oxford and King's Coll. ; W. V. Roache, I. M. Robertson, and R. Roderick, St. Bart.'s ; R. Rose, Middlesex ; Mona M. Russell Cruise, Royal Free and St. Mary's ; A. de la C. Russian and P. G. Salt, St. Bart.'s ; J. I. Sapwell, Cambridge and King's Coll. ; R. Saran, Calcutta and London ; S. Scheinfein, Univ. Coll. ; T. G. Scott, Guy's ; H. Shenouda, Cairo and Manchester ; V. C. Shroff, Bombay and Westminster ; Catherine E. M. Siddall, Royal Free and St. Mary's ; E. J. Silverman, Middlesex ; T. E. N. Simpson, Liverpool ; M. R. Sinclair, Cambridge and St. Bart.'s ; E. T. O. Slater, Cambridge and St. George's ; Felix Smith, Birmingham ; Fred Smith, Cambridge and London ; G. H. A. Soysa, Ceylon ; E. T. C. Spooner, Cambridge and St. Bart.'s ; Joan Staddon, King's Coll. ; R. J. Steeds, Univ. Coll. ; T. R. Stevens, St. Thomas's ; D. W. Stuart, King's Coll. ; J. H. R. Thomas, Cardiff ; L. G. Thomas, Liverpool ; Doris H. Tomes, Westminster ; Sybil E. Tremellen, King's Coll. ; S. L. Tunnicliffe, Liverpool ; L. P. Tupling, Guy's ; H. L. Vaidya, Bombay and London ; Isabel Vallance, St. Mary's ; J. H. Wainwright, Cambridge and Westminster ; Nora W. Wamsley, Charing Cross ; A. J. Watson, Middlesex ; J. R. S. Webb, St. Thomas's ; W. A. S. Welsh, Birmingham ; A. R. N. Whitlow, Univ. Coll. ; P. C. Wickremesinghe, Ceylon and Guy's ; J. W. Wigg, Univ. Coll. ; W. J. Wilkin, Cambridge and St. Bart.'s ; G. H. J. Williams, Cardiff and London ; S. T. Williamson, Guy's ; W. A. Wood, St. Bart.'s ; and E. C. Wynne-Edwards, St. Thomas's.

On the nomination of the Council, Dr. Robert Arthur Young, Dr. Joseph Shaw Bolton, Dr. Grafton Elliot Smith, and Sir Percy Bassett-Smith were elected Councillors to take the places of Dr. A. G. Phear, Sir StClair Thomson, Dr. Bedford Pierce, and Sir Leonard Rogers.—Sir Francis Champneys was re-elected a Representative of the College on the Central Midwives Board.—Dr. R. A. Young was reappointed a member of the Committee of Management.—The President announced the award of the Jenks memorial scholarship for 1927 to James Ramsay Muirhead Martin, formerly of Epsom College.—The President announced the appointment of Dr. A. G. Gibson to the Bradshaw lectureship for 1928, and of Dr. J. Graham Forbes to the Milroy lectureship for 1929.—The President announced the award of the Gilbert Blane gold medal to Commander A. W. McRorie, M.B., R.N.—The President announced that the adjudicators have awarded the Weber-Parkes prize to Dr. A. Stanley Griffith, of Cambridge.—Among others, communications were received from : (1) Dr. J. G. Taylor, of Chester, asking the College to accept his resignation of the Fellowship. This was accepted with regret. (2) The British Pathologists Association, asking the College to consider the desirability of instituting a special Diploma in Pathology. The President nominated a Committee to consider the question and to report to the College. (3) The War Office, inviting the College to send a representative on the Organising Committee of the International Congress of Military Medicine and Pharmacy to be held in London on May 6th to 11th, 1929. The President was appointed to represent the College. (4) Mr. F. G. Hallett, expressing his appreciation of the action of the College on his retirement from the office of Secretary to the Conjoint Board.—A report was received from the representative of the College on the Committee of Management of the Chelsea Physic Garden, and ordered to be entered on the minutes.—A report was received from the Committee of Management recommending that the Universities of Cologne and Barcelona, and the University of Tennessee College of Medicine be added to the list of institutions whose Graduates in Medicine are admissible to the Final Examination in Medicine, Surgery, and Midwifery. The Committee further reported that they had recognised courses of instruction at the following institutions—viz., D.P.H. Examination : the Haffkine Institute, Parel, Bombay ; the London School of Hygiene and Tropical Medicine (the five months' course recognised for the course of parasitology only) ; and the University of Lucknow.—The Committee reported the retirement by rotation from the Committee of Dr. R. A. Young and Mr. F. J. Steward.—After some formal College business, the President dissolved the comitia.

GRESHAM COLLEGE.—Four lectures on Insanity and History of its Treatment will be delivered at 6 P.M. on Monday, Tuesday, Thursday, and Friday, Nov. 7th, 8th, 10th, and 11th, by Sir Robert Armstrong-Jones, at Gresham College, Basinghall-street, E.C. 2. Admission free.

OPTICAL SOCIETY.—The next meeting will be held at the Imperial College of Science on Thursday, Nov. 10th, at 7.30 P.M. Mr. J. R. Hamblin and Mr. T. H. Winsor will read a paper on the Resolution of Gratings by the Astigmatic Eye, and Mr. O. Aves a paper on the Deviograph and Trial Frame.

HARWICH FORCE DINING CLUB.—This Club was established in 1924 for the purpose of reuniting all commissioned officers who served as such at Harwich at any time during the war, 1914–18. A dinner is held once a year, and all officers of the R.N.R., R.N.V.R., as well as the Royal Navy and Marines are eligible for membership. The dinner this year is to be held at the Hotel Metropole on Friday, Dec. 16th. Any officers desiring to become members should communicate with Lieut.-Commander H. Trevor Dawson, R.N., 6, Broadway, Westminster, S.W. 1.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.—The annual dinner will be held on Thursday, Nov. 17th. The guests will include Mr. Neville Chamberlain (Minister of Health) and Lord Eustace Percy (President of the Board of Education).

CENTRAL LONDON THROAT, NOSE AND EAR HOSPITAL.—On Friday, Nov. 11th, at 4 P.M., Mr. Ernest B. Waggett will deliver the annual address, entitled On Observation.

WEST KENT MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society will be held at the Miller General Hospital, Greenwich, on Friday, Nov. 11th, at 8.45 P.M., when Dr. Edward Mapother will deliver an address on Coöperation by the Profession in the Treatment of Mental Disorder.

THE BRITISH SCIENCE GUILD.—The subject of the third annual Norman Lockyer lecture will be Scientific Ethics, and it will be given by Dean Inge on Monday, Nov. 21st, at 4 P.M., in the Goldsmiths' Hall, Foster-lane, London, E.C. Admission is free and tickets may be had from the Secretary of the Guild, 6, John-street, Adelphi, W.C. 2.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—On Monday, Nov. 7th, at 5 P.M., at the Medical Society, 11, Chandos-street, Cavendish-square, W., Sir StClair Thomson will deliver a lecture on Bleeding from the Nose and Throat. On Wednesday, Nov. 9th, at 12 noon, Mr. Greeves will give a special clinical demonstration at the Royal London Ophthalmic Hospital, and on the same day at 3 P.M. Sir William Willcox will give a special demonstration at St. Mary's Hospital. Mr. Cecil Rowntree will demonstrate on Thursday, Nov. 10th, at 3 P.M., at the Cancer Hospital. The lecture and demonstrations are open to members of the medical profession without fee. From Nov. 14th to 26th there will be a clinical course at St. Peter's Hospital, including a series of formal lectures on diseases of the urinary tract. From Nov. 14th to Dec. 3rd a course in surgery and gynæcology will be held at the Royal Waterloo Hospital, occupying the mornings and some afternoons. From Nov. 21st to Dec. 17th, at 5 P.M. daily, a series of clinical demonstrations upon selected cases will be given by the staff at the West End Hospital for Nervous Diseases, and from Nov. 21st, daily from 4.30 P.M. to 6 P.M., for two weeks, there will be a course for practitioners at the London Temperance Hospital. A course in proctology will be given at St. Mark's Hospital from Nov. 28th to Dec. 3rd. Copies of all syllabuses are obtainable from the Secretary of the Fellowship at 1, Wimpole-street, London, W. 1, and will be sent regularly to those who wish to receive them. Specimen copies of the *Post-Graduate Medical Journal* will be sent on request.

JOINT TUBERCULOSIS COUNCIL.—At a meeting of the Council held at 1, Upper Montagu-street, London, W.C., on Oct. 22nd, attention was called to the restriction placed on tuberculosis schemes by the 1912 Act which aimed at the treatment of patients rather than the prevention of disease. A resolution sent up by the Society of Medical Superintendents and the Tuberculosis Society to the following effect was endorsed :—

> This meeting desires to draw the attention of the Ministry of Health to the grave difficulties in carrying out the scheme of the departmental committee on tuberculosis owing to the restrictions placed on the treatment of debilitated children who may be suffering from tuberculosis, by the necessity of waiting for the notifiable stage to be reached before action can be taken under the present tuberculosis scheme.

The Council considered that if there was a reasonable probability of tuberculosis in childhood the lack of precision in diagnosis and the sequential absence of notification should not necessarily hinder treatment in a suitable institution.—Officers for 1928 were elected as follows : Sir Henry Gauvain, chairman, Dr. Lissant Cox, vice-chairman, Dr. James Watt, treasurer, and Dr. E. Ward, Secretary.

Post-graduate Course in Radiology.—The Council is arranging a post-graduate course on radiology in tuberculosis and diseases of the lungs, to be held at the City of London Hospital (Victoria Park, E.) from Monday, Nov. 21st, to Saturday, Nov. 26th. Each morning there will be demonstrations of radiograms or museum specimens by members of the hospital staff, with further lectures or demonstrations in the afternoon. The radiograms will be displayed during the day so that members of the class may study them at their leisure. The fee is 3 guineas, and an application has been made to the Ministry of Health to allow the course to rank for grant. Application should be addressed to the hon. secretary, Post-graduate Courses, Joint Tuberculosis Council, at the Larches, Farnham Royal, Bucks.

MEDICAL OFFICERS OF SCHOOLS ASSOCIATION.—A general meeting of this association will be held at 11, Chan street, Cavendish-square, London, W., on Friday, Nov. 1 at 5 P.M. (tea 4.30 P.M.). Mr. W. Rowley Bristow will a paper on the Commoner Disabilities of Bones and Jo in Adolescence.

CHADWICK PUBLIC LECTURES.—On Thurs Nov. 10th, and Tuesday, Nov. 22nd, at 8.15 P.M., at Lecture Hall of the Royal Society of Arts, John-str Adelphi, London, Major Harry Barnes will give two lect on the History of Housing. The first will deal with period before 1885.

ROYAL NATIONAL ORTHOPÆDIC HOSPITAL.—Herbert E. West, the deputy chairman, has been ele chairman in succession to the Earl of Denbigh, who rece resigned. Mr. West has been associated with the hos for many years and is chairman of Prince Henry's Sp Committee which is raising money for extensions.

LEAGUE OF RED CROSS SOCIETIES.—The ann meeting of the Council of the International Union aga Tuberculosis was held in Paris on Sept. 28th. Ten coun sent delegates—namely, Austria, Belgium, France, Germ Great Britain, Italy, Monaco, Norway, Poland, and Swit land. Finland and Bulgaria have now joined the Un which includes 34 countries. The sixth conference wil held at Rome in September, 1928.

SMOKE INSPECTION.—The Ministry of Health Circular 759 suggested that the officials responsible for abatement of smoke nuisances should be specially quali and that there should be special courses of training for th With this end in view, the Royal Sanitary Insti 90, Buckingham Palace-road, London, S.W., has arra a course of ten lectures beginning to-day (Nov. 4th) to a candidates preparing for the examinations of the Insti qualifying for the post of smoke inspector. The lect cover a wide field, and include, amongst other subjects, laws and by-laws relating to smoke ; the general princi underlying the production and transmission of heat ; f furnaces, and chimneys ; the principles and practic stoking ; the nature and composition of smoke ; anc prevention in boilers, furnaces, and domestic fires. course also includes visits to various works and institut where demonstrations illustrating the management working of different types of furnaces will be given. Alth primarily intended for smoke inspectors the lectures open to others.

ST. THOMAS'S HOSPITAL DINNER.—The an dinner on Oct. 28th was the first to be held in St. Thom House, opposite the hospital. Sir Charles Ballance, presided, referred to the different conditions of 50 y ago, and spoke appreciatively of Mr. le Gros Clark, William Macormac, and Dr. Charles Murchison, to w he owed a special debt. Reviewing the events of the y he mentioned the trouble to which Dr. Percy Smith been put in the courts to defend his professional righte ness and personal honour, and on behalf of those pre offered to Dr. Smith their sincere and affectionate sympa Sir Arthur Stanley, the treasurer, said that St. Thom House was proving very popular under the wardenshi Dr. L. B. Maxwell. He hoped that old students of hospital would look on it as their club in London. Cuthbert Wallace spoke of the loss which the hospital sustained by the death of Mr. J. E. Adams. Among o old students who had died during the year were Sir B Donkin, Dr. J. R. Leeson, and Dr. J. H. Tonking, of C borne, who had been the surgical father of Devon Cornwall for many years. As new members of the sta welcomed Mr. Max Page, Mr. Robinson, and Dr. Po The entry of new students this year had been the la for a considerable period. After mention of the well-deserved honours recently conferred on Sir Charles Ma and Sir Farquhar Buzzard, Sir Cuthbert Wallace e with a personal tribute to Sir Charles Ballance, spea of the way in which he had always helped younger and of his patriotism and loyalty. Mr. Percy Sa proposed the health of the guests in an amusing sp Sir Arthur Keith, who responded, said that if 40 y ago he had been shown St. Thomas's House, and had told it was a home of medical students, he would h thought himself in another world. There had bee revolution in the social circumstances of medicine there was no doubt about it, they were getting much extravagant. He had first come to St. Thomas's visitor on arriving in London, and from those who rece him so kindly had learnt a lesson which he would n forget—that a man should never let business inte with courtesy to strangers.

Messrs. J. and A. Churchill, medical and scientific blishers since 1825, have transferred their premises to Gloucester-place, Portman-square, W.1.

PRINCE OF WALES'S HOSPITAL.—The annual dinner the Reunion Association will be held at the Trocadero staurant, Piccadilly Circus, London, on Friday, Nov. 11th, 8 for 8.15 P.M., Mr. Edward Gillespie in the chair. e Secretary of the Association is Dr. J. Browning xander, 42, Harley-street, W. 1.

INCORPORATED GLASGOW DENTAL HOSPITAL.—It been decided to erect a new building for this institution a cost of £90,000 upon a site in Renfrew-street. At a blic meeting to consider the situation of the hospital, A. S. M. Macgregor, the medical officer of health, stated t the whole of the work was carried on "under conions of gross overcrowding." The waiting-room is small ill-ventilated, and when it is full patients have to wait the stairs and in the street. In the main operating room dental chairs are so closely packed that there is scarcely m to pass between them; the mechanical section is badly rcrowded, and the quarters of the dental school are anitary.

INTERNATIONAL CONTINUATION COURSE IN PUBLIC ALTH.—Under the auspices of the Health Organisation the League of Nations an International Continuation rse in Public Health is being held at the house of the iety of Medical Officers of Health from Nov. 3rd until . 15th. Participants nominated by the League are nding from the Continent and the British Dominions. ew tickets for the course have been offered to medical cers of health, for the use of members of their staffs o may wish to attend the lectures in which they are ecially interested. Any places remaining will be allotted rder of application to those who apply for admission ls to the Executive Secretary, 1, Upper Montagueet, Russell-square, W.C. 1. The lecturers from abroad ude Dr. A. Foramittie (Vienna), Prof. B. Nocht mburg), Dr. Debré (Paris), Prof. G. Y. Giglioli (Florence), f. F. Neufeld (Berlin), Prof. Clemens Pirquet (Vienna), Haven Emerson (New York), and Dr. M. Taute (Berlin), F. G. Boudreau and Dr. M. K. Stouman, of the Health tion of the League of Nations, will also give papers.

he opening address was to be delivered by Sir George rman, and other addresses during the course will be en by Sir George Buchanan and other senior medical ers of the Ministry of Health, Sir W. Hamer, Prof. Carl wning, Prof. W. W. C. Topley, Surgeon Commander S. F. iley, Prof. E. P. Cathcart, Sir Henry Gauvain, Dr. ward Mapother, Dr. Andrew Balfour, Prof. H. R. Kenrd, Dr. R. A. Lyster, Dr. J. J. Buchan, Dr. Charles ter, Dr. T. H. C. Stevenson, Dr. G. F. Buchan, Dr. C. J. mas, Dr. W. M. Willoughby, Dr. F. C. Shrubsall, Dr. Allen Daley, and Lieut.-Colonel F. E. Fremantle, M.P.

Medical Diary.

nformation to be included in this column should reach us proper form on Tuesday, and cannot appear if it reaches ater than the first post on Wednesday morning.

SOCIETIES.

YAL INSTITUTION, Albemarle-street, W.
TUESDAY, Nov. 8th.—5.15 P.M., Sir J. H. Parsons: Light and Sight.

YAL SOCIETY OF MEDICINE, 1, Wimpole-steet, W.
TUESDAY, Nov. 8th.—5 P.M., THERAPEUTICS. Paper: Dr. R. D. Lawrence: Studies of Unusual Diabetics: (*a*) An Insulin Resistant Case; (*b*) Recovery From (?) Pituitary Diabetes after Pregnancy. Dr. F. Parkes Weber: A Note on Artificial Cerebral Congestion against Sea-sickness. Dr. J. H. Gaddum: A Comparison of Thyroxin with some other Iodine Derivatives. Other papers will be read. 8.30 P.M., PSYCHIATRY. Presidental Address: Dr. R. L. Langdon-Down: Psychiatry and the Report of the Royal Commission.
WEDNESDAY.—5.30 P.M., SURGERY: SUBSECTION OF PROCTOLOGY. Discussion on the Treatment of Cancer of the Rectum by Radium, to be opened by Sir Charles Gordon-Watson. Those desiring to take part in the discussion should send their names to the Hon. Secretary.
THURSDAY.—8 P.M., NEUROLOGY. Clinical Meeting at the Hospital for Epilepsy and Paralysis, Maida Vale, W. 9.
FRIDAY.—5.30 P.M., CLINICAL. (Cases at 5 P.M.) Mr. C. P. G. Wakeley: Case of Fibro-cystic Disease of the Femora. Dr. Dorothy Hare: Case of Erythromelalgia. Dr. Donald Hunter: Case of Co-arctation of the Aorta. Dr. Douglas Firth: Case of Gumma of Liver with Splenomegaly. Mr. P. H. Mitchiner: Tumour of Trapezius. Dr. Adolphe Abrahams: Case of Primary Arterial Fibrosis. Dr. B. T. Parsons-Smith: Case of Intrathoracic Tumour. Other cases will be shown. 8.30 P.M., OPHTHALMOLOGY. (Cases at 8 P.M.) Cases: Mr. A. C. Hudson: A Case of Congenital Dislocation of Both Lenses Treated by Iridotomy. Mr. P. G. Doyne: Two Cases of Macular Degeneration. Communications, &c.: Mr. O. Gayer Morgan and Dr. F. D. Howitt: The Application of Heat by Diathermy in Iridocyclitis. Dr. P. H. Adams: Two Cases of Congenital Cataract with Spontaneous Absorption of the Lens. Mr. Ernest Clarke and Dr. Rayner Batten: Drawings illustrating Toxic Hæmorrhagic Retinitis.

HUNTERIAN SOCIETY.
MONDAY, Nov. 7th.—9 P.M. (in the Cutlers' Hall, Warwick-lane, E.C.). Discussion on the Legal Perils of the Doctor, in which Earl Russell, Mr. Rayner Goddard, Dr. James Neal, Sir Herbert Waterhouse, and Dr. Temple Grey will take part.

BIOCHEMICAL SOCIETY.
MONDAY, Nov. 7th.—5 P.M. (in the National Institute for Medical Research, Hampstead, N.W.). Communications: M. Stephenson: On a Cell-free Dehydrogenase Obtained from Bacteria. G. A. Harrison: The Cause of Andrewes' Diazo Test for Uræmia. A. Harden and F. R. Henley: The Equation of Alcoholic Fermentation. W. V. Thorpe: Presence of Histamine in Tissue Extracts. O. Rosenheim: Note on the Fluorescence of Ergosterol and its Cause. M. G. Eggleton and P. Eggleton: A Few Observations Concerning Phosphagen. Demonstrations: J. T. Irving: A Simple Shaker for Light Objects. O. Rosenheim and E. Schuster: A New Colorimeter based on Lovibond's Colour System.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East, S.W.
TUESDAY, Nov. 8th.—5 P.M., Dr. Herbert Spencer: The History of British Midwifery from 1650 to 1800. (First FitzPatrick Lecture.)
THURSDAY, Nov. 10th.—5 P.M. (Second FitzPatrick Lecture.)

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn-fields, W.C.
THURSDAY, Nov. 10th.—5 P.M., Sir Cuthbert Wallace: Enlarged Prostate—A Review. (Bradshaw Lecture.)

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.
MONDAY, Nov. 7th, to SATURDAY, Nov. 12th.—FELLOWSHIP OF MEDICINE. Special lecture at the Medical Society, 11, Chandos-street, Cavendish-square, W., on Mon., at 5 P.M., Sir StClair Thomson: Bleeding from the Nose and Throat.—ROYAL LONDON OPHTHALMIC HOSPITAL, City-road, E.C. Special demonstration on Wed., at noon, by Mr. Greeves.—ST. MARY'S HOSPITAL, Paddington, W. Wed., at 3 P.M., special demonstration by Sir William Willcox.—CANCER HOSPITAL, Fulham-road, S.W. Thurs., at 3 P.M., special demonstration by Mr. Cecil Rowntree. All the above are free to the medical profession.—BROMPTON HOSPITAL FOR DISEASES OF THE CHEST, Brompton, S.W. Special course for one week. Instruction in all departments.—HAMPSTEAD GENERAL HOSPITAL, Haverstock-hill, N.W. General practitioners' course—second week—4.30 to 6 P.M. daily. Further information from the Secretary, Mayfair 2236.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.
MONDAY, Nov. 7th.—2.30 P.M. to 5 P.M., Medical, Surgical, and Gynæcological Clinics. Operations.
TUESDAY.—2.30 P.M. to 5 P.M., Medical, Surgical, Throat, Nose, and Ear Clinics. Operations.
WEDNESDAY.—2.30 P.M. to 5 P.M., Medical, Skin, and Eye Clinics. Operations.
THURSDAY.—11.30 A.M., Dental Clinic. 2.30 P.M. to 5 P.M., Medical, Surgical, and Ear, Nose, and Throat Clinics. Operations.
FRIDAY.—10.30 A.M., Throat, Nose, and Ear Clinics. 2.30 P.M. to 5 P.M., Surgical, Medical, and Children's Diseases Clinics. Operations.
There will also be a special demonstration of dermatological cases at 2 P.M. on Wednesday, and of surgical cases on Friday, at 2 P.M., by Dr. W. Jenkins Oliver and Mr. E. Gillespie respectively.

WEST LONDON HOSPITAL POST-GRADUATE COLLEGE, Hammersmith-road, W.
MONDAY, Nov. 7th.—10 A.M., Dr. Dowling: Skin Department. 2 P.M., Mr. Donald Armour: Operations. 2 P.M., Dr. Ironside: Medical Out-patients.
TUESDAY.—11 A.M., Mr. Endean: Venereal Diseases. 2 P.M., Mr. Addison: Operations. 4.30 P.M., Dr. Owen: The Heart in Childhood.
WEDNESDAY.—10 A.M., Dr. Burnford: Medical Wards. 2 P.M., Mr. Tyrrell Gray: Operations. 2 P.M., Dr. Scott Pinchin: Medical Out-patients.
THURSDAY.—11 A.M., Resident Assistant Surgeon: Ward Demonstration. 2 P.M., Mr. Bishop Harman: Eye Department. 3 P.M., Sir Henry Simson: Gynæcological Ward Visit.
FRIDAY.—11 A.M., Dr. Pritchard: Modern Methods in Medicine. 2 P.M., Dr. Shaw: Medical Out-patients. 2 P.M., Mr. Vlasto: Throat, Nose, and Ear Department.
SATURDAY.—9.30 A.M., Dr. Burnford: Bacterial Therapy Department. 10 A.M., Dr. Owen: Medical Diseases of Children.
Daily, 10 A.M. to 5 P.M., Saturdays, 10 A.M. to 1 P.M., In- and Out-patients, Operations, Special Departments.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION, St. James's Hospital, Ouseley-road, Balham.
WEDNESDAY, Nov. 9th.—4 P.M., Mr. V. Z. Cope: Clinical Demonstration of Surgical Cases.

ROYAL NORTHERN HOSPITAL, Holloway, N.: POST-GRADUATE COURSE.
TUESDAY, Nov. 8th.—3.15 P.M., Dr. Malcolm Donaldson: Antenatal Care.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.
THURSDAY, Nov. 10th.—4 P.M., Dr. W. W. Payne: The Value of Blood-sugar Estimation in Diagnosis and Treatment.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 49, Leicester-square, W.C.
TUESDAY, Nov. 8th.—5 P.M., Dr. H. MacCormac: Diseases due to Animal Parasites.
THURSDAY.—5 P.M., Dr. W. J. O'Donovan: Occupational Dermatitis.

ANCOATS HOSPITAL (Mill-street, Manchester) POST-GRADUATE LECTURES.
THURSDAY, Nov. 10th.—4.15 P.M. (tea at 3.45 P.M.), Mr. E. E. Hughes: Some Remarks on Gall-stones.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE COURSE.
TUESDAY, Nov. 8th.—4.15 P.M., Mr. F. G. Wrigley: Acute Otitis Media.
FRIDAY.—4.15 P.M., Mr. J. Spalding: The Education of the Deaf Child and the Work Done in the Manchester Schools.

UNIVERSITY OF SHEFFIELD POST-GRADUATE CLINICS.
FRIDAY, Nov. 11th.—3.30 P.M., Mr. Garrick Wilson: Surgical Cases.

JAMES MACKENZIE INSTITUTE FOR CLINICAL RESEARCH, St. Andrews.
TUESDAY, Nov. 8th.—4 P.M., Prof. J. Charteris: Pharmacological Principles in Relation to Common Gastro-intestinal Ailments. Discussion to be opened by Dr. W. F. Mair.
FRIDAY.—4 P.M., Case reading and discussion, in which all medical practitioners are invited to take part.

PEOPLE'S LEAGUE OF HEALTH.
THURSDAY, Nov. 10th.—6 P.M. (at 11, Chandos-street, Cavendish-square, W.), Dr. H. Gardiner-Hill: Internal Secretions as Factors in Nutrition.

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.C.
WEDNESDAY, Nov. 9th.—4 P.M., Lt.-Col. F. E. Fremantle, M.P.: The Present Situation in Regard to Housing.

CHADWICK PUBLIC HEALTH LECTURES.
THURSDAY, Nov. 10th.—8.15 P.M. (at the Royal Society of Arts, John-street, Adelphi, W.C.), Maj. Harry Barnes, F.R.I.B.A.: Housing before 1885 (first of two lectures on History of Housing).

Appointments.

King's College Hospital and Medical School: WILLIAMS, R. P., M.D. Lond., D.P.H. Oxf., Lecturer in Hygiene; LIVINGSTONE, J. L., M.D., M.R.C.P., Demonstrator in Pathology; EAST, C. F. T., M.D. Oxf., F.R.C.P. Lond., Medical Tutor; EDWARDS, H. C., M.B. Lond., F.R.C.S. Eng., Surgical Tutor; SAUNDERS, R. M., M.B., Ch.B. Edin., Obstetrical Tutor and Obstetric Registrar; LUCAS, H. A., M.R.C.S., L.R.C.P. Lond., Pathological Tutor; BICKERTON, J. M., M.B. Oxf., F.R.C.S. Eng., Ophthalmic Tutor; NEWMAN, C. E., M.B., B.Ch., M.R.C.P. Lond., Medical Registrar; BELL, J. G. Y., M.B., B.S. Lond., Surgical Registrar; WOOD, H. L. C., M.B., B.S., RUTHERFORD, R., M.R.C.S., L.R.C.P. Lond., COGSWELL, A. P., M.R.C.S., L.R.C.P. Lond., DALZELL, A. C., M.B., B.S., BATTEN, G., B.M., B.Ch., HOLLINS, A. S., M.R.C.S., L.R.C.P. Lond., BUTLER, E. N., B.M., B.Ch., GOLDBY, F., M.R.C.S., L.R.C.P. Lond., BOCKETT, E. J. C., M.R.C.S., L.R.C.P. Lond., KENDALL, A. W., M.R.C.S., L.R.C.P. Lond., WAKELEY, L. S. P., M.R.C.S., L.R.C.P. Lond., NEWMAN, J. L., M.R.C.S., L.R.C.P. Lond., DAUNCEY, K. E. D., M.R.C.S., L.R.C.P. Lond., LIVINGSTONE, G. H., M.R.C.S., L.R.C.P. Lond., and BOWIE, E. D., M.B., B.S., Resident Medical officers; MACHUGH, M. A. C., M.R.C.S., L.R.C.P. Lond., Junior House Anæsthetist; CUMINGS, J. N., M.R.C.S., L.R.C.P. Lond., HUMPHREYS-OWEN, I. R., M.R.C.S., L.R.C.P. Lond., MAY, K. S., M.R.C.S., L.R.C.P. Lond., and MACMYN, D. J., M.R.C.S., L.R.C.P. Lond., Assistant Casualty Officers.

Certifying Surgeons under the Factory and Workshop Acts: BROWN, A. C., M.D., Ch.B. Edin. (Ripon District of the County of York, West Riding); MORRIS, J. W., L.R.C.P., L.R.C.S. Edin., L.R.F.P.S. Glasg. (Festiniog District of the County of Merioneth); and SOMERVILLE, I. F., M.B., Ch.B. Glasg. (Beith District of the County of Ayr).

Vacancies.

For further information refer to the advertisement columns.

Birmingham City Education Committee.—Asst. Sch. M.O. £600.
Birmingham and Midland Ear and Throat Hospital.—Surg. and Asst. Surg.
Bournemouth, County Borough.—M.O.H. £1000.
Bristol General Hospital.—Hon. Surg. Reg. Also Hon. Asst. P.
Burton-on-Trent, Bretby Hall Orthopædic Hospital.—Res. M.O. £450.
Buxton, Devonshire Hospital.—Bacteriologist. £400.
Cairo, Egypt, Girls' Schools under the Ministry of Education.—Asst. Med. Inspector. L.E.480.
Canterbury Borough Mental Hospital.—Asst. M.O. £350.
Cardiff University College of South Wales and Monmouthshire.—Professor of Pathology and Bacteriology. £1500.
Central London Throat, Nose, and Ear Hospital.—Second Re H.S. At rate of £75.
Croydon County Borough.—M.O.H. £1300.
Dreadnought Hospital, Greenwich.—Med. Supt. £300.
Durham County and Sunderland Eye Infirmary.—Locum.
Ealing Borough.—Asst. M.O.H. £600.
East London Hospital for Children and Dispensary for Wome Shadwell, E.—Phys. Also Asst. Phys.
Elizabeth Garrett Anderson Hospital, 144, Euston-road, N.W.—H.P., Obstet. Asst., 2 H.S.'s. Each at rate of £50. Al Clin. Assts.
Hampstead General and North-West London Hospital. Haverstoc hill, N.W.—H.S. At rate of £100.
Ipswich, East Suffolk Administrative County of.—Asst. Coun M.O.H. £600.
Italian Hospital, Queen-square, W.C.—Hon. Surg. to Throa Nose, and Ear Dept. Also Asst. Anæsthetist.
Kingston-on-Thames, Surrey County Mental Hospitals.—Thi Asst. M.O. £300.
Leeds, Tuberculosis Sanatorium, Killingbeck.—Asst. Res. M. £250.
Lewisham, Metropolitan Borough of.—M.O.H. £1100.
Liverpool Maternity Hospital, Oxford-street.—H.S. At rate of £
London Jewish Hospital, Stepney Green, E.—Res. M.O. A Jun. Res. M.O. At rate of £150 and £100 respectively.
Middlesex Hospital, W.—Res. M.O. £400. Also Asst. Rad logist. £150.
Middlesex Hospital Medical School.—Two Surgical and Medical Registrar. Each £300.
New Zealand Research Laboratories.—Dairy Research Bacter logist. £850.
Nigeria.—Four M.O.'s for Tsetse Fly Investigation. Each £6
North Middlesex Hospital, Edmonton, N.—Visiting Throat Su Three guineas per session.
Norwich, Norfolk and Norwich Hospital.—H.S. £120.
Poplar Hospital for Accidents, East India Dock-road, E.—Secc Res. O. £175.
Royal Free Hospital, Gray's Inn-road, W.C.—Two Assts. M.O. in charge of V.D. Dept. Each £500.
Royal Northern Hospital, Holloway, N.—Asst. Radiolog £140.
St. Albans and Mid-Herts Hospital and Dispensary.—Res. M. £150.
St. John's Hospital, Lewisham, S.E.—Gynæcologist to O patients.
St. Mary Abbots Hospital, Kensington.—Med. Sec. and Regist £300. Also two Asst. M.O.'s. Each £250.
Sierra Leone, School Laboratory, Freetown.—Two Research As Each £600.
Southampton, Royal South Hants and Southampton Hospital Cas. O. £120.
Surrey County Council.—Asst. M.O.'s. Each £600.
Swansea Hospital.—H.S. to Ophth. and Aural Depts. £150–£2
Warwick County Mental Hospital, Hatton.—Asst. M.O. £30
Westminster Hospital, Broad Sanctuary, S.W.—Asst. P.
Worcester General Infirmary.—Jun. Res. M.O. £120.

The Chief Inspector of Factories announces a vacant appo ment for a Certifying Factory Surgeon at Lydbr (Gloucestershire).

Births, Marriages, and Death

BIRTHS.

HOME.—On Oct. 21st, at Grosvenor-street, Edinburgh, the of Dr. Bruce F. Home, West African Medical Service, daughter.

NEAME.—On Oct. 25th, at Greenheyes, Buckhurst Hill, wife of C. Stanley Neame, L.D.S. R.C.S. Eng., of a son.

MARRIAGES.

LOUGHNANE—KEATINGE.—On Oct. 29th, at the Brom Oratory, Farquhar MacGillivray Loughnane, F.R. Welbeck-street, to Blanca Keatinge, of Nottingh place, W.

STRACHAN—FORSYTH.—On Oct. 26th, at St. John's Episc Church, Dumfries, Frederick James Strachan, M.B., B.S., to Olga Marie, youngest daughter of the William Forsyth, Kilmarnock.

SUMMERS—BAIRD.—On Oct. 27th, at St. Peter's Ch Burnham, Bucks, by Rev. Percy Nott, M.A., Max Hamilton Summers, M.R.C.S., L.R.C.P., to Evelyn Eliza Baird, M.A., M.B., Ch.B.

DEATHS.

CHOLMELEY.—On Sunday, Oct. 30th, Henry Patrick Cholm M.D., at Forest Edge, Forest Row, Sussex, aged 68.

DAY.—On Oct. 27th, at Harlow, Essex, Thomas Montagu M.R.C.S., L.R.C.P.

EVANS.—On Oct. 25th, at Glanfraed, Brundall, Norfolk, H William Evans, *M.C.*, M.D. Lond.

WALSH.—On Oct. 26th, at Thelsford Farm, Wellesbourne, Warwick, F. Newton Walsh, B.S., M.R.C.S., L.R. Lond., of Douglas-road, Handsworth, Staffs.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notic Births, Marriages, and Deaths.

Notes, Comments, and Abstracts.

ARTIFICIAL DEFORMATION OF THE SKULL:

A SUGGESTION AS TO THE ORIGIN OF THE CUSTOM.

BY WARREN R. DAWSON, F.S.A. SCOT.

THE head of the Egyptian King Amenophis IV. (c. 1375–50 B.C. Eighteenth Dynasty), who is usually known by e name he assumed after his great religious revolution Akhenaten—is always represented on his monuments as ving a peculiarly elongated form, whilst the rest of his dy is feminine in contour. As one of the results of his formation, Egyptian art during Akhenaten's reign under- nt great changes, and the singular bodily form of the ng as portrayed on his monuments has always been pposed to be no more than one of the novel conventions the new art. In 1907 a tomb was discovered and nounced as that of Queen Tiy, Akhenaten's mother. In e tomb the remains of a mummy were found, but owing the penetration of moisture into the chamber, the soft rts had entirely decayed leaving nothing but the skeleton. hen these bones were examined by Prof. Elliot Smith he nd them to be those, not of an elderly woman, but of oung man. Archæological evidence was soon forthcoming show that the tomb had been wrongly identified as that Queen Tiy, and no doubt remained that the burial was lly that of Akhenaten himself.

The skeleton proved to be one of exceptional interest, d a detailed description of it was published by Prof. liot Smith in his monograph, *The Royal Mummies* p. 51–57), in 1912. He came to the conclusion that the skull nibited signs of hydrocephalus, a view that was confirmed Prof. A. R. Ferguson, who pronounced the evidence of drocephalus to be quite unmistakable. Akhenaten had ner pathological peculiarities, and it now seems very obable that he was a case of the syndrome described by hlich in 1900, now known as dystrophia adiposogenitalis, h which hydrocephalus is often associated.[1]

Now it is a very curious fact that the infant daughters this King (he had no sons)[2] are always represented on ntemporary monuments with heads of a very peculiar pe, and, as in the case of Akhenaten himself, this had herto been held to be no more than a convention arising of the novel artistic concepts which came into vogue at time. In 1924 Prof. Elliot Smith expressed the view t the childrens' heads might have been subjected to the cess of artificial deformation.[3] At the time this suggestn was advanced he was not aware that the material for ving the mystery was already in existence, for in 1918 George Sobhy, of Cairo, published photographs and a cription of the head of a female mummy from Tell el arna (Akhenaten's capital), and of the period of that gn.[4] When the flesh and resin had been removed and skull cleaned, its shape shows without any doubt that had been artificially deformed. Dr. Sobhy made a storation of the head and features from the measurements the skull, and the result exactly resembles the form of head in the portraits and statues of Akhenaten's ughters.

There is no evidence to prove whether or not this skull longed to a member of Akhenaten's family, but it does least prove that artificial deformation was being practised Egypt during his time, and suggests that the form of henaten's head, pathologically deformed by nature, y have been deliberately copied by artificial means in case of his daughters. Egypt at the time set the fashions ich were copied wherever her influence extended, and it extremely likely that such an innovation would have n imitated in Western Asia.

This point lends particular interest to the account given Hippocrates of the "Longheads" of Asia Minor. He inctly tells us that these people remodelled by hand heads of their children immediately after birth, and t they forced the skull to increase in length by the use bandages and suitable appliances.[5] Hippocrates goes on to say that this peculiar form of head, originally produced by art, became natural, and that long-headed parents had long-headed children. We need not, however, discuss this insistence upon the false supposition of the inheritance of acquired characters, as this does not now concern us, but we may note that he concludes by saying that the custom had become less frequent than formerly. This definite evidence of cranial deformation in Asia Minor before the fifth century B.C. is of great interest, especially as Hippocrates implies that it was an ancient custom already becoming obsolescent in his time.

In later times, as is well known, the custom of deforming the skull acquired a wide geographical distribution, and it is very significant that it occurs almost always in association with megalith-building, mummification, and various other singular customs and beliefs which follow the "heliolithic track" round the world. Cranial deformation has been recorded from various parts of Europe and Western Asia, from Malaya, Indonesia, Melanesia, Southern North America, Central America, and South America (where the mummies of Peru have provided numerous examples), and elsewhere.

The facts, therefore, seem very suggestive of the interpretation that the custom had its origin in Egypt in the fourteenth century B.C., during the reign of Akhenaten, and thence spread, with mummification and other practices of admitted Egyptian origin, till it encircled the world.

Cambridge University Medical Society Magazine, 1926, 37.

The suggestion has recently been made that Tutankhamen y have been the son of Akhenaten by a secondary wife, but re is as yet no evidence to prove this.

Elliot Smith and Dawson: Egyptian Mummies, London, 4, p. 96.

Bulletin de l'Institut Français d'Archéologie Orientale, 8, xiv., 64, and one plate.

Airs, Waters, Places, xiv.

THE PATHOLOGY OF ELECTRIC SHOCK.

SINCE the first fatality from industrial electricity in 1879, there has been much research into the exact cause of death by electrocution, and it has been shown that artificial respiration is of vital importance as a means of treatment. Nearly every industry in which electricity is used now trains its employees in preventive measures and in first-aid, but the number of casualties continues to rise, partly because the known methods of resuscitation are not immediately applied. In an endeavour to reduce the mortality from these accidents, the Hydro-Electric Power Commission of Ontario initiated a research into the physiopathology of electric shock, under the direction of Prof. J. J. R. Macleod, of the University of Toronto, and an account of the inquiry appeared in the *Journal of Industrial Hygiene* for April.

It is well known that one of the important effects of electric shock is to throw the heart into fibrillation, and rabbits were selected for most of the experiments because their hearts are relatively difficult to affect in this way. The equipment allowed of any variation in the current, and of its accurate measurement. In the first group of 33 rabbits, alternating currents varying from 1000 to 2200 milliampères were sent from the occiput to a hind leg, since previous observers had noted that this path usually missed the heart but caused disturbances in the brain and spinal cord. Nine began to breathe again spontaneously, six were restored by artificial respiration, and 18 died. In nine of these 18, the heart stopped beating within one minute of the cessation of the current, and in the remainder it continued for periods varying from two to nine minutes. The investigator, Dr. R. W. I. Urquhart, concluded that the heart was injured in 45 per cent. of the cases, and that it is impossible to predict whether, when a current passes the length of the body, the heart will be affected or not. A second series of 36 animals was subjected to the passage of currents of 500 to 1600 milliampères between the upper nostril and the exposed occipito-atloid ligament, so that the vital centres of the brain would alone be involved. These animals were anæsthetised, but the "eye reflex" was obtained before the current was passed. In any case the evidence goes to show that anæsthesia has no protective value. The result in 18 cases was death from asphyxia, with no evidence of fibrillation or gross injury, and 18 others recommenced breathing spontaneously. There was a more or less definite borderline between fatal and non-fatal currents at 600 to 700 milliampères, but with a smaller electrode lesser currents were required to produce fatal apnœa. This was probably because of a concentration effect.

Another significant experiment showed that 25 out of 30 animals could be revived after a shock which was severe enough to kill if they had been left alone. The five that died had all suffered gross damage to the spinal cord or the medulla, and the occipito-atloid ligament had been badly charred. Prompt and efficient artificial respiration, says Dr. Urquhart, nearly always saved the animal if started within five or six minutes of the shock, but after a longer interval the damage to the heart was irremediable. It was found necessary to continue the artificial respiration for a long time after natural breathing appeared. In contradiction of the popular belief in "counter-shock" as a restorative measure, no kind of stimulation had any effect in hastening recovery, and it was impossible to detect any reflex effects even from faradic shocks of the central end of the sciatic nerve. In addition to graphical records of blood pressure, direct observation was maintained on the heart

through a window in the chest wall, and it was seen to be inhibited completely in rabbits and dogs, and almost completely in cats. That the inhibition is due to stimulation of the vagus centres was proved by its great reduction when the vagi were severed and its complete absence when they were controlled by atropine, which would paralyse the extravagal inhibitory fibres as well. Moreover, the current itself causes a complete block at the vagal nerve-centre, so that no stimulation of it affects the blood pressure. No relation could be made out between the severity of the shock and the appearance of capillary hæmorrhages in various parts of the brain, and Dr. Urquhart considers that they are probably due to the sudden great increase in blood pressure which follows the passage of the current. They occur in survivors as well as in the dead, and are probably, he says, not an important factor in death from electricity.

The result of the whole inquiry is to throw even more stress on the importance of artificial respiration, particularly by the prone pressure method, and to the necessity of beginning it immediately and continuing it until recovery or decisive evidence of death. The ordinary tests for death are invalidated by the block in the nerve-centres, and no pains should be spared until the body cools or rigor mortis sets in.

Prof. Stefan Jellinek, writing in the *Medizinische Klinik* for Sept. 23rd, states that most fatalities from electric shock are due to faulty restorational technique. No injury, he says, has ever been found post mortem that would account for death, and the immediate effects of the shock are purely functional. He is very strongly in favour of wider instruction in artificial restoration, and of the provision of fully equipped restoration centres at mines, works, and all places where electrical accidents are likely to occur. Severe symptoms at first give the best prognosis, and immediate death is as a rule merely apparent. He recommends conservative treatment. Operation on damaged parts of the body is, he says, contra-indicated for two reasons: one is that the extent of the injury does not become obvious for some weeks, and the other is that from the end of the first week the vessels rupture easily and the hæmorrhages are very troublesome to staunch. Nevertheless, there are two exceptions to this. An emergency lumbar puncture is indicated when the patient shows symptoms of pressure in the brain, which may occur some hours after the accident, and hæmorrhage of the larger vessels a month or so later may call for immediate ligation if the patient's life is to be saved.

According to Prof. Jellinek the micropathological changes, as observed in the skin at the site of an electrical lesion, are a compression of the horny layer into an homogeneous plaque, and an ironing-out of the underlying papillary processes. Occasionally fissures and hollows appear between the corneum and germinativum, but this is not invariable, and the surest sign that an electric current has passed is the coalescence into a star-shaped or rod-like structure of the basal cells in each group of the rete Malpighii. The lesion is not a burn, and none of the surrounding structures are altered. It heals without infiltration, suppuration, or pyrexia, but when tendons, joints, and large areas are involved there may be some aseptic necrosis, and it is presumably this change which accounts for the hæmorrhages which sometimes complicate recovery. Macroscopically the appearance of the skin, when anything is to be seen at all, is a greyish-white patch slightly hard to the fingers, often with an umbilicated notch or dimple.

AN ENGLISH-SPANISH MEDICAL DICTIONARY.

A CORRESPONDENT asks to have recommended to him a good English-Spanish medical dictionary, but it appears that there is no such work that is properly inclusive and completely trustworthy. Our correspondent may be advised to obtain the "Medical Pocket Dictionary in Eight Languages (including Spanish)." (Berlin: Urban and Schwarzenberg (obtainable in London from Messrs. Williams and Norgate, 14, Henrietta-street, Covent Garden, W.C. 2, at 22s. 6*d*.)). "Terminologia Medica Polyglotta (including Spanish)," by the late Dr. Theodore Maxwell in the year 1890 (London: J. and A. Churchill, 7, Great Marlborough-street, W. 1, 16*s*.), was a good book in its time, but is, we believe, now out of print; and, of course, was tabulated and concise only, without detailed explanations. It might be worth while to refer to Manuel Marin, publisher, 273 Provenza, Barcelona, Spain, who published under the editorship of Dr. Alfonso Arteaga Pereira in 1918 a full translation into Spanish of an English medical annual and must be acquainted therefore with the many terms in both languages (the annual was intended to be continued). Our correspondent might also inquire in the United States from the Secretary of the American Medical Association, 535, North Dearborn-street, Chicago. Some years ago the United States authorities, in connexion with their administration of Manila, published elaborate tables of diseases and causes of death in parallel columns, English and Spanish, which could serve as a dictionary perhaps for many terms.

PRESENTS AND "TIPS" IN NURSING HOMES.

To the Editor of THE LANCET.

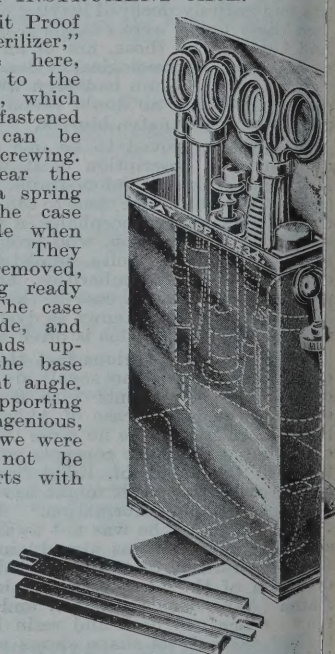
SIR,—For many middle-class patients the expenses [illegible] private nursing homes in our large towns are a very hea[vy] burden. But they are a burden which must be bor[ne] until more of our large hospitals establish pay wards. [illegible] some nursing homes (in what proportion I am unable [to] state) it is usual for patients, on leaving the home, to g[ive] presents to the nurses and "tips" to the servants. Su[ch] presents and tips are an additional heavy burden to ma[ny] middle-class patients, and except in special circumstan[ces] they should be unnecessary. To the writer it appears v[ery] desirable that this custom should not become gene[ral]. Medical men by doing what they can to oppose the cust[om] would help to diminish the expenses at nursing homes.

In one of the instances, in which I know all details, [the] presents to nurses and tips to servants, given by a pati[ent] (not wealthy) on leaving a London nursing home, reacl[ed] (at the suggestion of the matron) the sum of £13. Wealt[hy] patients should remember that by giving large presents a[nd] tips they are helping to establish a custom which is a hea[vy] burden for most patients. It is to be hoped that b[oth] general practitioners and consultants will, at least, do w[hat] they can to oppose the custom of giving presents to nurses.

I am, Sir, yours faithfully,

PHYSICIAN.

A POCKET INSTRUMENT CASE.



THE "Security Spirit Proof Emergency Pocket Sterilizer," which we illustrate here, should be of value to the practitioner. The lid, which is seen detached, is fastened by two bolts and can be removed without unscrewing. The plates which bear the instruments rest on a spring at the bottom of the case and therefore protrude when the lid is taken off. They can thus be easily removed, the instruments being ready for immediate use. The case is compact, well made, and watertight, and stands upright on a foot at the base which turns to a right angle. The method of supporting the instruments is ingenious, though in the model we were shown they could not be fixed to their supports with perfect security. The "Sterilizer," without instruments, is obtainable from the sole distributor, Charles F. Thackray, Park-street, Leeds, and 119, High Holborn, London, W.C. 1, at a cost of £1 2*s*. (postage extra).

The Longevity of Cricketers.—In our editorial comm[ent] last week on Dr. Bradford Hill's analysis of the duratio[n of] life in cricketers there was an obvious misprint. He was[, of] course, dealing with "cricketers of British nationality b[orn] *before* 1888."

Messrs. Baillière, Tindall and Cox, 7 and 8, Henrie[tta]-street, W.C., have issued a catalogue (dated October, 19[27]) of publications in medicine and allied sciences. The [first] section of the catalogue, which runs to 39 pages, deals [with] books of medicine, dentistry, or nursing published du[ring] the last ten years or so, the large majority quite recen[tly], the date of publication being given in each instance. T[here] are a few announcements of books in preparation. A convenient index of both subjects and authors precedes [the] catalogue.

Deaths from Infectious Disease in England and Wa[les] during the Week ended Oct. 1st, 1927.—These figures [were] inadvertently omitted in our issue of Oct. 15th. They should run as follows: In the aggregate of great tow[ns], including London, there was no death from small-[pox], 5 (1) from enteric fever, 9 (1) from measles, 2 (0) from sca[rlet] fever, 10 (0) from whooping-cough, 20 (4) from diphthe[ria], 94 (21) from diarrhœa and enteritis under two years, [and] 34 (5) from influenza. The figures in parentheses are t[hose] for London itself. The number of stillbirths regist[ered] during the week was 258 in the great towns, including 5[9 in] London.

An Address
ON
MEDICINE AND THE CHURCH.

ing the Annual Oration given before the York Medical Society on Oct. 19th, 1927,

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PHYSICIAN EXTRAORDINARY TO H.M. THE KING;
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THE word "indulgence" has various meanings, for ee at least of which I must advance a claim before ering upon the subject of my address.

ndulgence is a synonym for gratification, and how I fail to be not only highly gratified but deeply teful when I find my name added to your long and tinguished list of "Orators." In its more religious se an indulgence is equivalent to a grant of certain rties as a special favour, and I pray that this ulgence may be extended to one who has the erity to invade the ecclesiastical stronghold of the th and talk about the Church in the same breath as licine. Without indulgence in its third sense the ission of temporal punishment due to sins, I could dly expect to escape the fate of Dick Turpin, who ered the extreme penalty of the law in this city centuries ago for offences which at that time e deemed less heinous than those which I may e commit.

n return for these indulgences it is only equitable I should give you some of my reasons for choosing edicine and the Church" as a topic suitable for occasion. In the first place, I was instructed that audience would not be entirely medical and that remarks, therefore, should be intelligible to minds ttuned to the technical and none too beautiful guage of my profession. In the second place, I influenced by the belief that, in spite of all that been said and written about spiritual healing in nt years, there remain some considerations bearing hat and kindred subjects, of interest alike to the sician and the priest, which have not received all ventilation requisite for their health and sanity.

was encouraged to carry on with a delicate and cult task by the knowledge that York is not so far ant from Leeds that echoes of a recent controversy erning science and religion may not only have hed you, but have prepared an atmosphere ged with sympathetic interest.

is my firm belief that such open discussions, liable igh they are to become overheated, never fail to e behind in the minds of participators and of their ence some impressions which make for the better rstanding of divergent views. At any rate truth r took root in the stagnant soil of silence and ishes only after exposure to the light and heat of roversy.

MEDICINE IN ANTIQUITY.

he history of medicine is far too big a subject for to do more than touch upon now, but even a rficial study of it suffices to reveal its intimate ciations with the history not only of religions in ral, but with that of the Christian Church. It be helpful, therefore, to a consideration of the ionship of medicine to the Church at the present if I recall to memory the principal features of their eration and contention in the past. Perhaps the est example of conflict between the followers of healing art and divine authority is provided in hology by the legend of Æsculapius, who, it will emembered, not only healed the sick, but brought dead to life. This excess of zeal not unnaturally d the ire of Pluto, King of Hades, who, with on, was threatened with the prospect of joining anks of the unemployed. Zeus, on being appealed lew the tactless physician with a thunderbolt, but the gratitude of mankind was subsequently instrumental in raising the latter to the status of a god, in which capacity he has continued to exercise a beneficent and fatherly care over the fortunes of our profession.

To Egypt and to an era 3500 years before Christ we have to go back for the earliest indications of the art of medicine, which at that time was concerned only with treatment. It was practised by men who combined the offices of priest and physician and who regarded the invocation of blessings on their remedies as not the least important security for their success. They were frankly healers and professed little interest in, or knowledge of, the causation of disease.

The early records of both Indian and Persian medicine emphasise their close association with religion, and suggest that sickness and recovery therefrom were attributable to the influence respectively of hostile and friendly deities.

Hippocrates.

In Greece, however, were laid the real foundations of rational medicine, and it was left to Hippocrates, a direct descendant of Æsculapius, to develop from the prevailing methods and doctrines of his day a new outlook upon the origin and treatment of disease, which has caused him to be regarded as the greatest physician of antiquity. No longer content to take the path of least resistance in assigning to supernatural influences phenomena which appeared difficult to account for, he formulated a belief which to many minds, even at the present day, is sufficiently satisfying: "From God comes one disease as well as another; but nothing happens except in conformity with Nature." He may, perhaps, be looked upon as the pioneer of a doctrine which is perpetuated to-day in the shape of a spa practice. To him the conditions of health and sickness were determined by seasons, climates, waters, and soils, as well as by personal habits in such matters as food and exercise. His pathological conceptions were not so happy. Four humours of the body—blood, phlegm, yellow bile, and black bile—were, according to his theory, the primary seats of disease, and health varied in relation to disturbances in their proper combination and appropriate activities. Not his least claim to fame was his attitude of expectancy in regard to treatment. In fact his aversion to drastic remedies earned him the reproach of letting his patients die by doing nothing to keep them alive—a reproach which has lost some of its sting with the advance of knowledge!

The work of Hippocrates, showing as it did that the advance of medicine was based on anatomy, physiology, and the scientific investigation of patients, impressed its mark on succeeding generations. On the one hand, anatomy was studied assiduously and fruitfully, especially in the Greek school at Alexandria; on the other hand, physiology became the playground of theories, too numerous to refer to, and too fantastic to deserve the attention of any but historians.

Galen.

And so we come to Galen, born at Pergamus in A.D. 131, who was destined to influence the progress or, perhaps it would be more correct to say, the stagnation of medicine for from 12 to 15 centuries. As an expositor of the medical knowledge of his time, as an anatomist and skilled dissector of the bodies of lower animals, and as a practical physician his reputation must always stand pre-eminent. As a physiologist and pathologist his contributions were of less value, and his dogmatism in regard to these subjects, fostered by the atmosphere of infallibility which pervaded both medicine and the Church for so many centuries, was a standing menace to all progress during the whole of that time. It must be noted, however, that Galen's doctrine did not come into its full power until his writings, having been translated into Latin, began to be studied in the West, with the result that by the sixth or seventh century his name and authority began to dominate medicine and thereafter kept it in chains for another thousand years.

Early Relations of the Church and Medicine.

It is germane to the subject of my address that we should pause for a moment to compare the history of the Church with that of medicine during that period. From the close of the eighth century until the Reformation in the sixteenth the Church, including all adherents to the Christian faith, was dominated by Rome, and the Papal ascendancy was so complete, its authority so infallible, that all individual freedom of thought was abolished. In these ages there developed the immoderate expansion of the religious and social omnipotence of Christianity, manifesting itself in the temporary subordination of the Church to the State, in the suppression of all criticism, and in the abundance of monastic orders.

The stories of medicine and Galen run on somewhat parallel lines. From the early Middle Ages the religious orders were the custodians of the degenerate knowledge and practice of the healing art inherited from the later Roman authors until the curious mixture of ancient science with the black art, characteristic of monastic medicine, was superseded by the Hippocratico-Galenic revival. The latter doctrine survived until the medical reformation, which took place very little later than that of the Church and which is so closely associated with the name of Vesalius, the founder of modern anatomy, who was condemned by the Inquisition as a sorcerer, and with that of William Harvey, the father of modern physiology. But those who took part in the reformation of medicine were not only exposed to the persecution of the Church, but were bitterly opposed by the disciples of Galen, and Vesalius himself did not escape the hostility of the latter when he published his monumental work on human anatomy in 1543.

The Church during the Middle Ages exerted its influence to uphold the Galenic doctrine, which presented no inconsistencies with the Christian faith and which dogmatically provided an answer to every question. Comment was allowed and commentators abounded. Criticism, on the other hand, was looked upon as a species of heresy and critics shared the fate of religious heretics. Research and experiment were regarded as closely akin to sorcery and witchcraft.

But medicine owes the Church a debt of gratitude for the performance of at least two valuable functions during the dark years of its history. The monastic orders were responsible for preserving the ancient literature of our profession, which would otherwise have been lost, and they were pioneers in the establishment of hospitals which eventually formed the basis of many famous and productive medical schools.

Ecclesiastical Control of Education and Practice.

Enough, perhaps, has been said to indicate the intimacy which existed between medicine and the Church throughout the Middle Ages, but it is worth while bearing in mind the control exercised by the latter over the former in regard to education and practice. To quote Dr. Arnold Chaplin :—

> " In early times, before the foundation of the Universities, the art of Medicine was largely the province of the Church, but in 1131, the Council of Rheims prohibited the regular clergy from devoting their attention to physical compositions, and after this edict the regular clergy confined themselves to prescribing medicines. In 1139, the Council of the Lateran prohibited physicians from administering to the wants of the body before the spiritual needs of the patient had received attention . . . . In 1422 the first enactment concerning the practice of medicine appears upon the statute book. ' No one shall use the mysterie of fysyk, unless he hath studied it in some University and is at least a bachelor in the science. The Sheriff shall enquire whether any one practice in this country contrary to this regulation ; and if any one so practice he shall forfeit £40 and be imprisoned.' The Church, however, still continued to exercise some authority, for in a statute of 1511 it is stated that ' except for those graduating in Medicine at Oxford and Cambridge, all desiring to practise medicine or surgery in London and seven miles around must be approved, after examination, by the Bishop of London or the Dean of St. Paul's with, in the case of Physicians, the assistance of four doctors in physick, and, in the case of surgeons, of other expert persons of that faculty.' "

A New Attitude towards Research.

It is interesting, too, to compare the writings scientific pioneers in the sixteenth and seventeen centuries with those of modern medical write and to trace the gradual development of a ne attitude towards research. Thus the secrets Nature came no longer to be regarded as sacred a knowable only to the Almighty, when difficulti were encountered in the attempt to unravel the There arose, on the contrary, a spirit of inqui undeterred by obstacles and no longer trammell by the belief that the search after knowledge w incompatible with the Christian faith. Let me quo two passages, one from Vesalius and the other fr Harvey, the latter written about 50 or 60 years aft the former.

Vesalius (1514–1564) : " The septum of the Ventric abounds on both sides with little pits impressed in it. these pits, none, so far at least as can be perceived by senses, penetrate through from the right to the left ventri so that we are driven to wonder at the handiwork of Almighty, by means of which the blood sweats from right into the left ventricle, through passages which esc human vision."

Harvey (1578–1657) : " When I first gave my mind vivisections, as a means of discovering the motions and u of the heart, and sought to discover these from act inspection and not from the writings of others, I found task so truly arduous, so full of difficulties, that I almost tempted to think, with Frascatorius, that the mot of the heart was only to be comprehended by God. length, and by using greater and daily diligence, hav frequent recourse to vivisections, employing a variety animals for the purpose, and collecting numerous obser tions, I thought that I had attained the truth."

At the time when Harvey was engaged on his li work, the result of which was to deliver from darkn into the light of truth the secret of the circulat of the blood, the Church found it desirable to for the clergy to attempt to cast out devils by fast and prayer, except by special licence from the bish

Separation of Medicine and the Church.

So much for the history of medicine up to the t of Harvey. The tercentenary of the publication his " De Motu Cordis," the monograph giving to world his great discovery, is to be celebrated i befitting manner next year.

Since his time the science of medicine has stea progressed, partly as the result of untiring resea at the bedside, in the post-mortem room, and laboratories, and partly as the result of the ra development of such ancillary sciences as those physiology, anatomy, chemistry, physics, biolo and bacteriology. Progress at first was slow, hampe by tradition, by prejudice, and by the very hur mistake of regarding hypotheses as final conclus instead of using them as a basis for research. In last 100 years the wheels of progress have mo much more rapidly, and, as I propose to show, conception of medicine as a profession has comple altered since the days when the physician-pries Egypt essayed blindly to cure the sick with a mix of blessings and herbs. But before attempting describe the science of medicine as it stands to- let us survey dispassionately the story of its evolu which I have outlined so briefly. The results of survey, whatever be their explanation, are clear incontestable. For more than a thousand y during which the Church shared the practice of medi with physicians, and dominated its methods, du which she was at the height of her spiritual po and during which millions of the sick and suffe must have passed through her hands, there wa material advance in the knowledge of disease its cure, or of its prevention. Moreover, from records of those centuries in which the Church every facility and every opportunity of proving gifts, there has survived no evidence in suppor the claim that spiritual healing of organic dis is a practical proposition, or that spiritual he differed, either in its essence or its efficacy, from c methods based on suggestion and faith, religiou otherwise.

On the other hand, the last two or three hundred ears have witnessed a gradual separation of the aths of medicine and of the Church, and synchronous ith that process the advances of medicine in regard the diagnosis, treatment, and prevention of disease ve only been equalled by the remarkable progress ade in other branches of science which threw off e fetters of the Church about the time of the eformation.

PRESENT CLAIMS OF THE MEDICAL PROFESSION.

And now let me embark on a difficult task, one ich calls for performance, and one which is a cessary and pertinent adjunct to what has preceded and to what is to follow it in my address to-day. is my purpose to answer as briefly and yet as rthfully as I can, the questions: What is the sition, and what are the claims of the medical ofession to-day?

Looking back, it is undeniable that during more an 5000 years the claim of those who practised dicine was to cure their patients of disease. It s not only their claim; it was what they were paid and what was expected of them, although it must admitted the claim has, as often as not, failed to be ostantiated. But in the course of the last century two we have gradually realised that no claim of that id can be maintained by us until we have mastered elements of knowledge regarding the causation and ognition of disease. Our conception of diseases has ered. They are no longer evil spirits to be exorcised; y are no longer distinct entities, and they hardly erve, except for convenience sake, the honour of a ne. An illness is the outward manifestation of a tle taking place between man and one or more of enemies, the adequate study of which entails a owledge of the patient, his heredity, his past and sent environment, his reactions, and powers of ack and resistance, as well as a close acquaintance h the properties and natural history of the enemy. recognise that, although we have learned much ut these combatants, our knowledge is still nentary, full of gaps, and often inapplicable as a or in deciding the issue of the conflict.

What is our position then? We place what knowge we possess at the disposal of our patient, we are dy to advise to the best of our ability in regard to disposition and conservation of his forces, we will g to his aid any auxiliary troops on which we have on to depend, and we will supervise and regulate tactics employed; but we make no claim to cure, er during the heat of battle or after victory has n won, should that be the result.

is inevitable, and perhaps fortunate, that in e of this modest standpoint, we are not infrequently lited with a success to which we have contributed le. It is inevitable, too, that our contributions to ccess are often valued in inverse proportion to their worth.

n the other hand, we, and we only, are in a position easure the part played by various factors leading uccess or failure in any case of illness under our , a task often of extreme difficulty to the most ned and experienced of physicians, and quite ossible to the patient or his untrained relatives friends. While we make no claim to a "gift of ing," it is not always beyond our powers to aise correctly the relative value of contributions e by nature, by drugs, or by suggestion towards a urable result.

PREVENTION.

n account of the position of the medical profession ay would be incomplete without a brief reference hat is known as its preventive side. With our easing knowledge of the causes of illness, and our gnition of the possibility that there may be ases concerning which complete understanding is inable, and which may yet remain unamenable to form of treatment, it is not unnatural that our est has turned, and tends every day to turn more, ards the question of their prevention. Preventive icine is still in its infancy, but as it matures it must inevitably call for intelligent, educated coöperation from the public, the State, and the Church.

The scope of our professional activity has extended, during the period laid under review, from an art concerned with healing to a science devoted in the first place to revealing the secrets of health and disease, and in the second place to utilising the knowledge thus gained for the relief of suffering, physical and mental.

PSYCHOLOGICAL MEDICINE.

Mental suffering is the subject which must next engage our attention, and I propose to use the term in its widest sense. The scientific study of mental processes and, in particular, the study of the brain as the organ of mind, lagged behind that of other parts of the body for a long time, but of recent years has so quickened its footsteps that the man in the street has not only failed to keep his place with it, but has had many a stumble in his efforts to do so. This is not the time or place to introduce or discuss abstruse psychological problems, and I shall be content to direct your notice to some aspects of psychology, psychopathology, and psychotherapy which specially concern us to-day.

It has been customary to describe disease as being either "organic" or "functional" in origin. The use of the adjective "organic" indicates that the disease is associated with some physical alteration of tissues which we are able to detect. The use of the adjective "functional" indicates that the disease or disorder described is attributed to a disturbance in the function of an organ without a physical change of structure such as we are able to detect. It is clear that these two varieties of disease may be closely associated in many ways. For instance, a disorder of function in an organ may be the result of a physical or organic disease. On the other hand, there may be organic disease without obvious disorder of function. Again, an organic affection of one organ may lead to a functional disturbance in another, or a disturbance of function in one part of the body may manifest itself by disorder of function in another.

Forms of Mental Disorder.

What has modern psychological medicine taught us in regard to the practical application of these truths?

1. There is a large group of mental disorders associated frequently with disturbances of health in the form of pain, insomnia, mental and physical fatigue, disorders of digestion, circulation, &c., and sometimes with grave disabilities such as paralysis, deafness, dumbness, blindness, and other apparently serious symptoms. The characteristics of this group may be briefly summarised: (*a*) Expert knowledge is required to distinguish them from diseases of organic origin with similar symptoms. (*b*) The primary cause of the disorder lies in the mind, and if the mind is relieved all other symptoms and disabilities disappear. (*c*) They are amenable to treatment by suggestion, some kind of faith, in God or man, being a necessary prelude to success. (*d*) They provide the large bulk of miraculous cures.

2. Another group comprises mental disorders which are commonly called the insanities and, although not necessarily permanent, are practically uninfluenced by suggestion, faith, spiritual healing, or any form of psychotherapy.

3. A third group includes all cases in which disorders of mind, as manifested by changes in character, personality, and conduct, are associated with, and the result of, structural changes in the brain itself. Unless the structure of the brain can be restored to health, the mental disorders cannot be relieved. Here again suggestion, faith, or any form of psychotherapy is useless.

4. In the last group we find a somewhat heterogeneous collection of mental disorders, of varying degrees of severity, of which the prime cause is to be found, not in the brain itself, but in some distant organ. Once more, the mind can only regain its health if the source of its ill-health can be detected and dealt with.

It is hardly necessary to point out that the task of allocating a particular patient to his appropriate group—and this is the first essential of successful treatment—is one which may well baffle the experienced physician, even when he is able to call upon colleagues who are experts in chemistry, bacteriology, or radiology, for their skilled assistance.

Before going further let me bring forward two facts well recognised by those who have to do with mental disorders, the significance of which cannot be overlooked when we consider the relationship of mind and matter.

An epidemic disease which has been prevalent during the last ten years and which has claimed thousands of the population as its victims, is essentially an inflammation of the brain resulting from the invasion of that organ by some form of microbe. As the result of this disease many patients have been paralysed or otherwise disabled. On the other hand, there are many who have escaped physical disabilities, but have been left entirely altered in personality. Some have lost all moral sense and yet retained a considerable degree of intelligence. In other words, a change in the structure of the brain matter has been definitely associated with an alteration in character. In such cases all attempts to restore a moral sense by means of education, training, or suggestion have generally proved useless.

Secondly, there is a common form of temporary mental disorder, of which one of the features may be a complete loss of religious faith. This disorder overtakes the faithful as well as the faithless, and it is remarkable that no amount of suggestion, persuasion, or spiritual healing avails to restore faith in God, or comfort in prayer, until health returns.

ATTITUDE OF THE CHURCH TOWARDS SPIRITUAL HEALING.

Enough has been said to indicate some of the obstacles which beset the path of anyone who ventures into the field of psychological medicine unequipped with such scientific knowledge as can only be acquired by years of specialised study and experience.

Let me now examine the present attitude of the Church towards spiritual healing. The claim to a gift of healing on the part of the clergy was based to a large extent, I understand, on the following passages from the Epistle of St. James :—

> "Is any sick among you? Let him call for the Elders of the Church; and let them pray over him, anointing him with oil in the name of the Lord: and the prayer of faith shall save the sick, and the Lord shall raise him up; and if he have committed sins they shall be forgiven him."

Taken literally, these words can be held to support the claim to a gift of healing, especially if the proviso is added that the patient must be duly imbued with faith. But is it possible to take the claim seriously when we see the amount of sickness and suffering which surrounds us on all sides? Surely, human nature being what it is, there would be no lack of faith if experience had shown that an elder of the Church, in alliance with faith and prayer, would suffice to nip all pain and suffering in the bud. We have only to recall to our minds the innumerable healers who have appeared from time to time in various countries, who have only had to proclaim the possession of a gift of healing, divine or otherwise, who have apparently cured all sorts of diseases, and who have inspired supreme faith in thousands of their clients. Faith, even if it is defined as the ability to believe that which there is no reason to think is true, is one of the commonest attributes of the human mind and, together with the almost universal fear of pain and sickness, forms an ideal and abundant soil for the work of the spiritual healer.

But I conclude that the weight of authority in the Church is now against the claim to heal "organic" disease. Thus the Committee of the Ministry of Healing appointed by the Archbishop of Canterbury in 1920, say :—

> "Our Committee has so far found no evidence of any case of healing which cannot be paralleled by similar cures wrought by psychotherapy without religion, and by instances of spontaneous healing which often occur in the gravest cases in ordinary medical practice."

A committee more recently appointed by the Grand Assembly of the United Free Church of Scotland appears to take much the same views as one may judge from the following extract from its report :—

> "It is claimed by many that God, in his grace not only does (both in organic and functional diseases) what neither medicine nor suggestion can do, but also that by faith and prayer His people may link themselves with Him in working the miraculous . . . . Mr. Maillard . . . . is no believer in coöperation between spiritual healers and medical practitioners. Sickness is in all cases, he holds, due to spiritual causes, and thus amenable to spiritual treatment. Accordingly, he argues that a child brought up on a foundation of spiritual truth and watched by guardians walking by faith, till he is able to walk by himself, will be saved from the harvest of children's complaints like measles, whooping-cough, so commonly deemed inevitable. And if the question be asked by what methods this power and love are brought to bear on sufferers, his answer is by the Holy Communion. Teaching of this nature," say the Committee, "is to be deplored. But the pity is that there is so much of it."

The claim to heal *organic* disease by spiritual means does not receive much support, therefore, from either committee, but later in the Scottish report appears the sentence: "The chief sphere of the physician's work is the body, of the minister the soul."

No reference is there made to the mind, if it be assumed, as it generally is, that the mind and the soul are not synonymous terms. But I hope that I have made out a case for the mind sufficiently strong to prevent its falling between two stools. There can be little doubt that more than half the ills to which man is prone originate in disturbances of the mind. There can be no doubt that they are more difficult to recognise, to classify, and to treat than those of purely bodily origin, and that the dangers attached to unskilled practice in that department of medicine are at least equal to those associated with ignorant interference in any other. A smattering of modern psychology unbacked by any knowledge of general medicine constitutes no valid certificate of fitness to solve the problems presented by the vagaries and disorders of the human brain.

The last sentence of the Committee of the United Free Church should not be left unquoted :—

> "But on no conditions can the Ministry forget that they have a charge to keep with the soul of the sick, and that in the hour of need, the Physician of the soul is as timely a friend as the Physician of the body."

With that sentiment I am in entire sympathy.

FAITH.

There remains but one other aspect of my subject to which I feel compelled to refer although with a sense of diffidence which it is not so easy to be rid of as to express. It concerns "faith," a word in constant use throughout religious history. The meaning and origin of faith have been the subject of theological controversies for centuries and will, I think, arouse the interest of psychologists for many years to come. "Faith," says the writer of the Epistle to the Hebrews, "is the substance of things hoped for, the evidence of things not seen."

This definition, the best I have met with, is not lacking in beauty and simplicity of language or conception, and it has the advantage of offering to us a meaning applicable alike to faith in God and faith in man. It is comprehensible to most people because there can be few of us who have not at some time or another experienced the feeling which these words so aptly describe in relation to some other human being. There must be a large number of us who entertain or have entertained the same kind of sentiment towards our particular conception of the Almighty Deity, whether it be that of the man of science or that of the church-goer.

At the same time experience must convince all seekers after truth that the capacity for faith varies in different individuals and, indeed, may be entirely wanting in some. A little thought, too, must satisfy us that faith in God, at any rate, is not a congenital but an acquired attribute of the human mind, and which, like most other attributes, is favoured or

voured by such factors as heredity, education, and vironment. The view of certain theologians that is the "persuasion of Christian truth wrought in the art by the Holy Spirit" is not one which will adily satisfy the scientist with a leaning towards ychology. The latter may be tempted to compare th with a sense of music, a sense of colour, or a se of humour, other mental attributes with the ne variations in hereditary potentiality and in velopmental capacity.

But however divergent may be the opinion of the entist and the theologian on this subject, the mer cannot fail to recognise the reality of faith l the immense power for good and happiness ich it exercises in the lives of a large proportion the community.

I seem to have wandered away from my subject l to have risked an excursion on to very dangerous und without justification, but this is not altogether case. What I have said in regard to faith does ncern what has gone before. It is incumbent on that I should answer one inevitable question: spiritual healing can produce cures comparable those of medicine and comparable to those of cks in cases of "functional" disorder, why uld the clergy not undertake that task? My ly to them would be: You will find a propor- n of cases without faith, or without sufficient h, in God, who will not respond to your ministra- ns. And, further, you will have some cures to r credit which are not the result of spiritual ling but due to a faith which *you* have aroused, in God, but in your own person; and you will always find it easy to allot the credit to its proper rce.

CONCLUSION.

am conscious that time, not desire, prevented me, le outlining the parallel history of medicine and Church, from doing justice to the magnificent k the latter has done in the past not only in rd to its own vocation, but in the promotion of and literature. I am aware, too, that I omitted record many instances of generous patronage owed by the Mediæval Church on individual ntists.

s far as I can see, there can be no cause for gonism between medicine and the Church, and have made the one bone of contention which between them the subject of my address I e done so in the hope of fanning the fire which, ner or later, will certainly reduce that bone to s.

et me assert, without fear of contradiction, that e can be no rivalry between the two professions that medicine has no fear of the Church as a rival petitor. Any fears I may entertain are for the rch who, if she listened to some of her disciples, ht find herself in competition, not with medicine, with quacks and charlatans.

have taken the courage of my profession in my hands to-day and have declared that we make claim to cure disease. I look forward to the when the Church will have the courage to say she makes no claim to spiritual healing. She never lack the means or the scope for ministering he sick and sorrowful, and from time to time she wipe the eye of medicine.

ut for the sake of those who suffer from disease, ther of body or mind, let the Church's share in riation be summed up in the seven words: was sick, and ye visited me."

ir Farquhar Buzzard's address was illustrated by s presenting the portraits of six leaders of medicine se work exemplified in particular great stages in ntific progress. These were Servetus, Vesalius, vey, John Hunter, Charles Bell, and Hughlings kson. Of the last he said:]

nd now I must remind you of York's greatest ribution to the science of medicine, of a man m posterity will honour as the father of neurology. fer to John Hughlings Jackson, who was born at Green Hammerton, only a few miles from here, on April 4th, 1835, and who studied medicine first in this city and later at St. Bartholomew's Hospital, returning here as house surgeon to the dispensary. After three years he migrated again to London, where for the rest of his life he was intimately associated with the London Hospital in Whitechapel and the National Hospital in Queen-square.

My claim to remind you of Hughlings Jackson is based on sound foundations, on memories more intimate perhaps than those of anyone else now living. His short and barren married life ended with the death of his wife in 1876. Thereafter for five and twenty years he was a constant, almost daily visitor to my father's house, and among my earliest recollections are those of this quiet, restless spirit appearing unannounced at any time of day and disappearing without ceremony ten minutes later. His life was a lonely one, and these visits, with less frequent ones of a similar character to one or two other houses, constituted almost his only social activities. He abhorred all public and social functions. He would generally come at lunch time, having lunched already, take a chair, contribute a few pertinent and drily humorous remarks to the conversation, mutter something about a mythical engagement, and vanish. Occasionally he would invite one or other of us to drive with him, but we had to be ready in two minutes if we accepted the suggestion. If we had ever treated him as a formal guest, made any effort to prolong his stay, or even got up and seen him out of the house, we should have risked frightening him away altogether.

Later I became his clinical clerk, house physician, and, finally, colleague at Queen-square. What a difficult man to describe even with all these opportunities of knowing him! Gifted with almost feminine tact and sympathetic tenderness he was never known to say an unkind word of anyone. Diffident about his own achievements, he was scrupulous to an almost quixotic degree in giving honour where honour was due. It was impossible for anyone who knew him to associate him with any thought or action lacking in bigness, truth, or generosity. And with all this no trace of priggishness or false piety. On the contrary, perfect manliness of demeanour combined with an abundant sense of dry humour.

On the intellectual side I have no hesitation in describing him as the finest and most stimulating brain with which I have ever come in contact, and that is the almost universal judgment of those who shared, however humbly, in his work. His powers of accurate observation and meticulous attention to detail were only equalled by his uncanny genius for deduction and generalisation. As a result he arrived at truths in advance both of his contemporaries and of his followers, and established himself for all time as the father of modern neurology and perhaps as the favourite uncle of psychology and physiology.

The name of Hughlings Jackson is remembered and revered all over the scientific world. Should it not also be revered and remembered in York, his native city, the city he loved and visited almost every year of his long life? His fame is of the kind which not only endures but grows as time passes on, and in less than eight years we shall, in London, be celebrating the centenary of his birth. In Queen-square we have a statue worthy of him. Is it too much to hope that, by 1935, York, too, may possess some fitting tribute to the memory of one of her greatest sons?

STOCK EXCHANGE HELP TO HOSPITALS.—The governing body of St. Mary's Hospital, Plaistow, E., has refused to accept money from the "Help Yourself Society" scheme of the Stock Exchange Dramatic and Operatic Society on the ground that to do so would be to encourage gambling. Last year the society distributed more than £42,000 among over 100 hospitals, and it is expected that a much larger sum will be raised this year.

THE PRESENT POSITION OF

LARYNGECTOMY FOR CANCER OF THE LARYNX.*

BY LIONEL COLLEDGE, M.B. CAMB., F.R.C.S. ENG.,

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LARYNGECTOMY has been widely practised and much discussed in recent years. It has been performed frequently in totally unsuitable cases and has been attended by a high mortality in the hands of many, and in the hands of a few under certain conditions it has been made a safe operation. It seems, therefore, a good time to take stock of the position which laryngectomy holds in relation to cancer in and around the larynx, being an operation at first sight so hazardous and severe as to be scarcely justifiable.

Laryngectomy has been used for extrinsic cancer of the larynx, has been combined with partial excision of the pharynx to the post-cricoid carcinoma of women, and has been applied to growths arising in the fossa pyriformis. At the present time, however, its use is almost limited to cases of intrinsic cancer too advanced for any conservative operation—that is, laryngo-fissure or partial excision. In such cases the pharynx is not invaded, and only so much of it need be removed as is necessary anatomically to excise the larynx; its closure presents no serious difficulty, and there is usually no need for any plastic operation nor the use of skin-flaps. Many lasting cures can be claimed. Such cases of advanced intrinsic cancer include the following types:—

(*a*) Where the disease has extended at all widely to the subglottic region. There is a high percentage of recurrence after laryngo-fissure in this condition, owing to the difficulty of elevating the mucous membrane below the lower edge of the thyroid cartilage, and the ease with which the disease spreads through the crico-thyroid membrane and crosses the middle line.

(*b*) Where the disease crosses the anterior commissure and invades both vocal cords.

(*c*) Where one or both vocal cords are fixed and there is extension to the arytenoid region. Although fixation of one cord does not necessarily contra-indicate laryngo-fissure, yet such cases show a large percentage of failures, and the question whether this operation or a partial or total excision of the larynx is the appropriate operation must be considered in each individual case. Hemilaryngectomy, or some modification of it, will result in a better voice and less social disability, but a permanent tracheotomy may be necessary afterwards in spite of the attempt to preserve an airway through the larynx, and there is a greater risk of recurrence.

(*d*) Where both vocal cords, the ventricular bands, and the subglottic region are attacked, and the larynx is choked with growth, no doubt can arise that laryngectomy is the proper operation.

(*e*) Where the disease has recurred after laryngo-fissure, though occasionally a second fissure or partial excision may succeed, laryngectomy should generally be preferred to a lesser operation. I have done this seven times on patients who had previously undergone laryngo-fissure. Of these four died within a year from another recurrence, one died from heart disease clinically free from any sign of cancer, and two only remain well six years and three years respectively since the laryngectomy. Recurrence after a laryngo-fissure, therefore, is not so hopeless as has been thought, but the outlook is clearly not very encouraging.

There are certain other considerations, of whi the recognition has influenced the results of operati beneficially. The decision whether laryngo-fissu laryngectomy, or some intermediate procedure is t appropriate operation for the case is of the utm importance. This decision should be made bef any operation is begun, and not left to an explorato investigation, because laryngectomy, preceded thyrotomy, is a longer and more complicated operati than a deliberately planned laryngectomy. If a doubt exists it will generally be found that lary gectomy is required, but each surgeon will be sway by his own views and experience, one inclined to sa the larynx wherever possible, another determin to place the risk of recurrence beyond every oth consideration.

Of this latter school Dr. John Edmund Macker is a prominent exponent, and records that of consecutive operations 31 were laryngectomies a only two laryngo-fissures. Later he records thyrotomies, as against 102 total laryngectomies. reference to the earlier series he writes as follow "Here I might digress and say a word on so amazing statistics of cures by *thyrotomy*, and even excision under suspension. Is it possible that general profession in the regions from which th statistics emanate is more enlightened and m alert in the detection of laryngeal cancer than we in New York and its environs?" The answer this ingenuous question is: "Why, yes, certainl Each case must be decided on its merits, and it evident that Dr. Mackenty sees a large proportion cases in an advanced stage, since he has only obtai 66 per cent. of cures after laryngectomy for intri cancer, as against 80 per cent. after thyrofissure in practice of Sir StClair Thomson. Here, especia as the late Sir Felix Semon quoted in this connexi it is necessary "to make the punishment fit crime." If the appropriate operation is select recurrence after thyrotomy should be extrem uncommon, but no larynx should be sacrifi unnecessarily. On the other hand, the surg should not allow himself to be forced into operat on an unsuitable case on the plea that the disea invariably fatal.

The general condition of the patient is of the utm importance, and may be a contra-indication i case otherwise suitable for operation. In this c nexion it must be remembered that in elderly pe the growth may be present for a long time be ultimately destroying life. In a case observed myself, the patient, who declined any form of op tion whatever, survived four years from the t that the growth was first recognised.

The most remarkable case is Gleitmann's, ultima recorded by Harmon Smith. A man of 33 c under observation with cancer of the larynx, pro histologically. The larynx was successfully remo 13 years later by Dr. Brewer.

Age in itself is no contra-indication. A medical m aged 73, passed through the convalescence wit any complication or even rise of temperature, returned to carry on his practice until his de some months later, from an unexpected recurr of the disease at the root of the neck. Gener however, it is natural that the younger the pat the better are the effects of the operation suppor Three patients between 40 and 50 caused very l anxiety. Those of spare build, with long, thin ne are better subjects than fat people with thick, s necks, and those addicted to alcohol are invari in a poorer position to withstand any severe operat but particularly a laryngectomy.

Prolonged dyspnœa appears to exercise a pernic effect on the general nutrition, and to cause wast Such patients withstand the effects of the opera very badly. A thin, wasted man of 56, had increasing dyspnœa, which would soon rendered a tracheotomy essential to life, succum to sloughing and septicæmia in a week, altho he was edentulous and in other respects a suit subject.

* Excerpt from the Semon Lecture delivered under the auspices of the University of London in the Barnes Hall of the Royal Society of Medicine on Nov. 3rd.

RATE OF MOVEMENT IN POST-ENCEPHALITIC PARKINSONISM.

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(*From the Department of Medicine, Sheffield University.*)

THIS paper records an attempt to obtain some formation as to the slowness of movement in arkinsonians by means of direct measurements of e rate at which a definite group of movements n be repeated during a definite period of time. For this purpose I selected side-to-side movements the arm over a distance of 18 in., with an obstacle in. high midway between the two points. This st is simple and easy to carry out and to measure, d can be done whilst sitting, so that even advanced ses can be examined. The apparatus (Fig. 1) nsists of an oblong board (3 × 1 ft.), in the centre which is a vertical board 4¾ in. high, fixed at right gles to the long axis of the base. On each side this is a make-and-break key, consisting of two t, rectangular ces of ebonite the upper × 4 in., the ver 8 × 6 in. e two keys 18 in. apart, m centre to ntre. They hinged at end away m the patient, ilst they are parated in centre by light spring, that the ls nearest the tient are ut an inch art. The htest down-d pressure the upper e breaks ircuit connected with terminals on the key. s remains broken until all pressure is removed n the upper piece. The terminals are con-ted with a Mackenzie polygraph recording aratus and an electric signal. The board is ped firmly along the edge of a table of con-ient height, and the patient sits facing the aratus on an adjustable stool. The end of the ight board should be exactly opposite the middle his sternum. The right arm is always tested . The action measured is not a single move-t from one key to another, but a *double to-and-fro ement from one side to the other and back again.*

he rate in most Parkinsonians can be easily nted without the recording apparatus by listening he alternate sounds of the keys, and timing by watch. Before beginning the test, the patient ully informed as to what is wanted of him—ely, that he should keep moving the hand from to key *as quickly as he can for a whole minute.* ept that he is told when to start and when to , nothing is said during the investigation. This mportant, as any kind of suggestive stimulus cause considerable change in the rate.

tandard figures for this apparatus were obtained n 23 males and 48 females—all healthy persons veen the ages of 19 and 40. The results were :—

Average Number of Double Strokes in One Minute.

	Right arm.	Left arm.
Males	125	115
Females	108	100

in each sex a difference of 8 per cent. between the two arms).

These numbers were taken as the normal for the corresponding arm, and the rate in each limb is expressed as a percentage of this. In left-handed persons these standards were found to be reversed.

In order to compare the degree of slowness in different cases, four groups have been made according to the number of double strokes per minute, expressed as a percentage of the normal standard for the corresponding arm and sex :—

Group A.—Rates between 75 per cent. and normal—i.e., at least a three-quarter rate.
Group B.—Rates between 50 per cent. and 75 per cent. of normal.
Group C.—Rates between 25 per cent. and 50 per cent.
Group D.—Rates below 25 per cent.

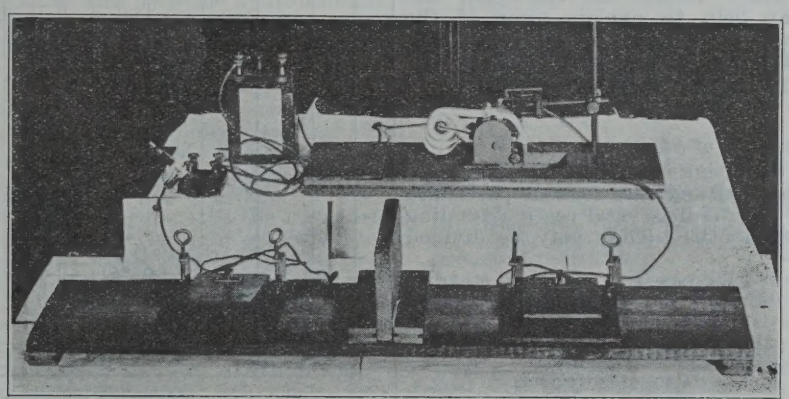
General Results.

Seventy-three Parkinsonians have been tested in this way. When grouped according to their quicker arm, they are distributed as follows :—

	48 males.		25 females.	
Group A	19 %	52 %	8 %	52 %
„ B	33 %		44 %	
„ C	42 %	48 %	24 %	48 %
„ D	6 %		24 %	

Only one showed a rate of movement which reached the normal average (in one arm only). Not more than half a dozen reached a rate equal to the minimum normal with either arm.

FIG. 1.



The measuring apparatus complete with recording instrument attached.

As these tests were not begun until November, 1925, and most of the cases tested had their acute attack of encephalitis in the spring of 1924, most of them cannot be looked upon as early cases. In some, however, Parkinsonism had only shown itself for a short time and there was no subjective complaint of slowness, yet when tested they were found to be definitely below the normal standard of rate of movement in both arms. Moreover, when slight stiffness and slowness was complained of in one arm only, the other arm was (with one exception) found to be slow as well.

There exists, therefore, a general slowness of movement, and one more widely spread than the particular slowness in one limb which the patient notices himself, and for which he seeks advice. One very active business man, who had improved remarkably after taking belladonna, was quite indignant when asked if he was any slower in his movements than before, and yet he only reached a rate of 80 per cent. with the right arm and 87 per cent. with the left.

This general slowness is also shown by comparing the average difference between the two arms in Parkinsonians with that of our normal standards. In 23 normal men and 48 normal women the average proportion of right arm to left is as 100 to 92 in each sex. In 48 Parkinsonian men it is 100 to 84; in 25 Parkinsonian women 100 to 86. There is never any extreme difference. In no case does one arm come into Group A, the other into Group D. Although in the earliest stages one arm may show definite slowness whilst the other remains normal, yet, so far as these records go, this is not usual at the stage at which patients come under observation, and it would seem that a generalised slowness of movement appears very early.

Flagging.

There is a general impression that a Parkinsonian tires quickly, and that he is unable to keep up any voluntary muscular effort for more than a short time. In order to test this, a number of normals and of Parkinsonians have been examined, and their respective rates of movements estimated in each successive quarter of a one-minute test "as quick as you can." Figs. 2 and 3 (solid lines) show the normal averages for each arm obtained from healthy young adults (16 males and 41 females), chiefly students and hospital nurses. In these charts the average number of strokes made in the first quarter-minute of each corresponding series of tests, whatever it may be, is always called 100, and the average in each succeeding quarter-minute expressed as a percentage of that. The amount of flagging varies, but in no case exceeds 10 per cent. in the normals.

Parkinsonians, in Groups A, B, and C, show practically no more tendency to "flagging" than do normal persons (Figs. 2 and 3). Their rate is slower, but they keep it up well for a whole minute. Marked flagging does not appear until a serious amount of slowness is present (less than quarter rate). Thus, in Group D, in both sexes and in both arms, it is present in an extreme form, whilst in females (left) it is present to a lesser extent even at rather higher rates (Fig. 3). These results are somewhat unexpected, and may help to explain some of the anomalies which have been noted by others.

Measurements of the polygraph records show that only a very small proportion of this flagging is due to increased delay in starting; it is chiefly in the act of movement.

Progress of Slowness.

By this method of testing it is possible to measure the progress of a case, at any rate for this particular feature. We have records in several cases extending over more than 18 months. They may be divided into two groups:—

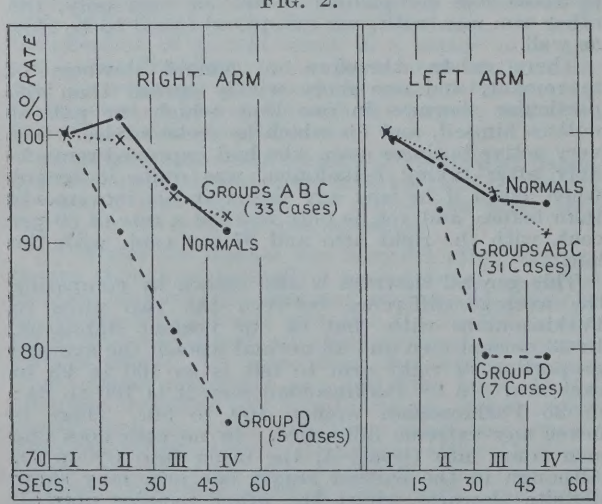
(*a*) Those that have increased in slowness steadily and progressively, of which the following case is an illustration:—

Female, aged 17. Primary attack May, 1924.

	Rate of movement— Right arm.	Left arm.
Nov. 2nd, 1925 ..	48 per cent.	45 per cent.
March 17th, 1926 ..	20 ,, ...	38 ,,
May 12th, 1926 ..	16 ,, ...	29 ,,
Oct. 13th, 1926 ..	17 ,, ...	28 ,,
March 2nd, 1927 ..	12 ,, ...	17 ,,

In this case belladonna had no beneficial effect.

FIG. 2.



Flagging (males). In Figs. 2 and 3 the columns I., II., III., IV. represent the four consecutive quarters of one minute. The number of strokes in the first quarter minute, whatever its actual amount in each group, is called 100, and the rates in succeeding quarters is calculated to this percentage.

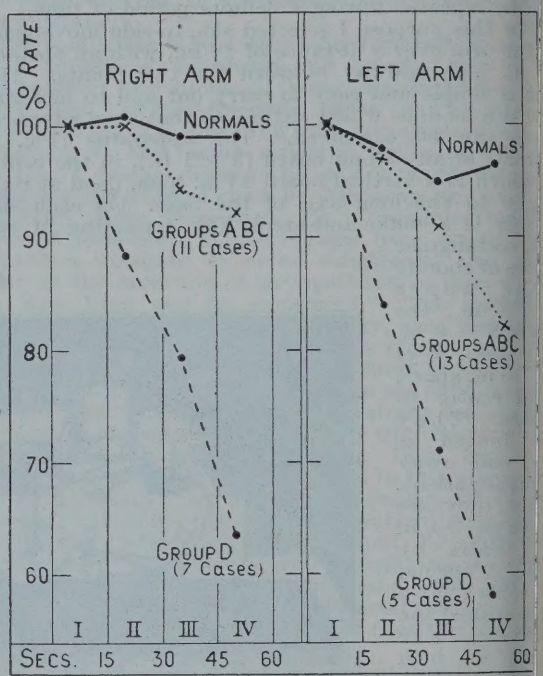
(*b*) Those that have remained at about the same level since first examined, as in the following case:—

Male, aged 24. Primary attack March, 1924.

	Rate of movement— Right arm.	Left arm.
Nov. 13th, 1925 ..	50 per cent.	34 per cent.
April 28th, 1926 ..	48 ,, ...	42 ,,
July 14th, 1926 ..	46 ,, ...	33 ,,
Oct. 20th, 1926 ..	39 ,, ...	34 ,,
Feb. 23rd, 1927 ..	47 ,, ...	42 ,,

Some of this group will be referred to later discussing the effect of drugs. In one case, ev

FIG. 3.



Flagging (females).

after nine years' duration of Parkinsonism, the r is still 57 per cent. right, 63 per cent. left.

The Effect of Belladonna on the Rate of Movement Parkinsonians.

Improvement, which may for a time be surprisi sometimes follows the administration of belladon In many cases, however, the effect is but slight, a in others it is nil.

Fig. 4 shows the most striking effects in my ca It will be seen from the chart: (*a*) that belladon can produce a definite increase in the rate of mo ment; (*b*) that such increase is at most about 25 cent. of the normal rate, usually considerably l (*c*) that it is usually very similar on the two sid whatever may have been the previous rates a however widely they may have differed in the t arms. In all the cases recorded there was only exception. In this man the right arm increa only by 4 per cent., whilst the left increased 29 per cent. There is some uncertainty about figures in this case, and if correct, it is quite exceptio The time during which the drug has been ta varied from one week to 16. Any effect usually occ within a week, and our records unfortunately sh that the improvement does not increase as the we go on, although the rate may remain at the hig level for many months under the influence of the dr

Effects of (a) Physical Exercises, and (b) Hyoscine Hy bromide on Rate of Movement in Parkinsonians.

Four men in whom Parkinsonism followed attack of encephalitis in the spring of 1924, and w for various reasons, had become inmates of the So

Yorkshire Mental Hospital, were tested for rate of movement on Nov. 15th, 1926, before any definite treatment was adopted (Fig. 5, columns I.). A week later, on Nov. 22nd, daily physical exercise, together with marching, was commenced. After about three months they were tested again, and all showed a diminution of rate in each arm, varying from 14 per cent. to less than 1 per cent. (Fig. 5, columns II.). This was thought to be the natural progress of events. The physical exercises were continued and two months later daily hypodermic injections of hyoscine hydrobromide, gr. 1/100, were given in addition. On August 21st, 1927, about 14 weeks after the hyoscine treatment was begun, they were again tested. All showed definite improvement (Fig. 4, columns III.). Thus, like belladonna (*a*) hyoscine hydrobromide can produce a definite increase of rate of movement. (*b*) the total increase is at most about 25 per cent. of the normal rate, usually considerably less; (*c*) it is usually about equal on the two sides.

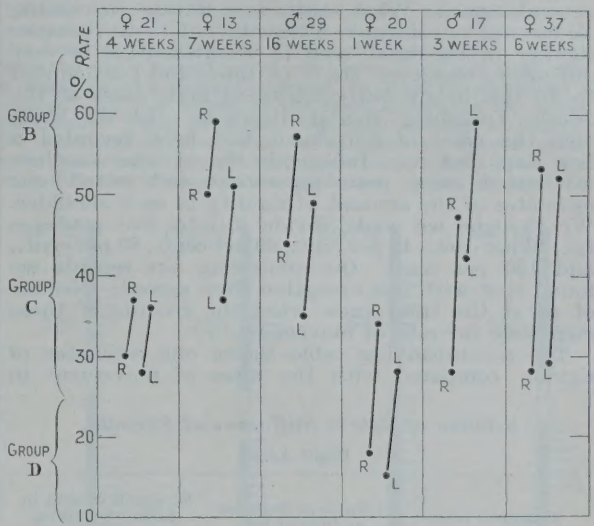
Effect of a Mental Stimulus.

"Kinesia paradoxa" is a well-known phenomenon in these cases, particularly in the movements of running. If it is present in the arms it should be measurable.

An opportunity of testing this offered itself on August 21st, 1927, in these four men who had been treated for three months with hyoscine hydrobromide. The following method was adopted. When the man was brought into the room he was asked to try the test again and do his very best so that we could see how much better he was. The conditions as regards silence and so forth were exactly as on previous occasions. When he had completed his test for both arms (vide Fig. 4, columns III.) and had a short rest, a packet of cigarettes was produced and put on the table in front of him. He was then told that if he could beat his previous rate with the right arm he would win the cigarettes. The right arm was then tested. When this was done, another packet was similarly produced as a prize for the left arm, and the left arm tested. The same procedure was adopted in each case, excepting that when the supply of cigarettes ran out sixpence was substituted as the prize. The results for each case are shown in Fig. 5, columns IV. The stimulus may not seem very great, but to inmates of an institution cigarettes or sixpence mean a good deal.

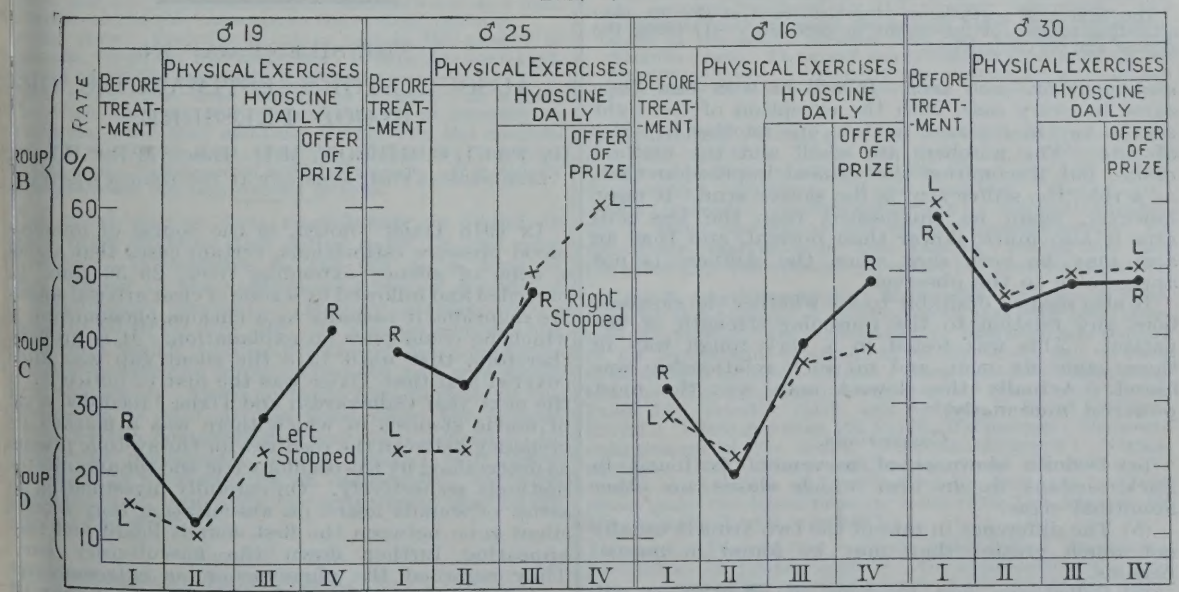
It is clear that with a mental stimulus the rate shown under ordinary conditions is capable at most of rather more than a 10 per cent. increase, and I am satisfied that none of these men could have done more than they did, however great the stimulus. It is, therefore, probably an exaggeration when Parkinsonians with pronounced slowness are said suddenly to make movements "as well as ever they did in their lives." The relative increase of rate appears greater than it really is, but is probably always much below normal. Whilst, however, there may be a reserve which can be released by an adequate stimulus, these records show that a limb which, under ordinary conditions, is not much slower than its fellow, has not a similar amount of "reserve," and that any attempt to call it forth fails in one way or another—either it exhausts itself very rapidly with

FIG. 4.



Effect of belladonna on rate of movement. R = right arm; L = left arm. In each the lower point is the rate before, the higher after taking belladonna. The number of weeks between the two estimations is given at the top of the column for each of the six cases.

FIG. 5.



Shows a series of four observations in each of four cases. Those shown in the columns marked I. were made on Nov. 15th, 1926, before treatment began; those in columns II. were made on March 3rd, 1927; whilst those in columns III. were made on August 21st, 1927. Physical exercises were started on Nov. 22nd, 1926, and continued daily until August 21st. Subcutaneous injections of hyoscine hydrobromide were given daily from May 5th to August 21st.

complete and abrupt stoppage, or the increase is only extremely slight. This complete abrupt stoppage of one arm only in two of the cases is a curious phenomenon. Both were obviously distressed at having to stop. One of them told me that his shoulder became "fixed" and he could not move it. The other could not give any reason. It appears as though in these cases of abrupt and complete "stoppage" some factor not present in the other arm comes into play.

So far, little or nothing has been said about "rigidity" of the arms (using the term in the most general sense). What share does it take in causing slowness of movement? This is difficult to say, because rigidity of the kind seen in Parkinsonians is very difficult to measure. Dr. C. G. Imrie and I attempted to do this in six fairly advanced male cases at the South Yorkshire Mental Hospital. In all these men the rates of movement had been recorded a few days before. Independently of one another, we tested each man separately and noted our estimates of the amount of rigidity in each shoulder. We thought we could divide it into five grades—i.e., 20 per cent., 40 per cent., 60 per cent., 80 per cent., and 100 per cent. On comparing our records we found that with one exception they agreed. Neither of us at the time knew what the records of these men were for rate of movement.

The accompanying table shows our estimates of rigidity compared with the rates of movement in

Relation of Rate to Stiffness and Strength.

Right Arm.

Measured rate of movement.	Stiffness of shoulder as judged by passive movements.	Strength of arm in lifting weighted bucket whilst sitting down.
13%..McC...(1)	80%..McC...(1)	100%..McC...(1)
19%.. T. ..(2)	60%.. T. ..(2)	100%.. N. ..(3)
23%.. N. ..(3)	60%.. N. ..(3)	70%.. R. ..(4)
25%.. R. ..(4)	60%.. L. ..(5)	70%.. H. ..(6)
37%.. L. ..(5)	40%.. R. ..(4)	50%.. L. ..(5)
43%.. H. ..(6)	20%.. H. ..(6)	30%.. T. ..(2)

Left Arm.

10%..McC...(1)	80%..McC...(1)	100%..McC...(1)
22%.. T. ..(2)	80%.. T. ..(2)	100%.. N. ..(4)
23%.. L. ..(3)	80%.. L. ..(3)	80%.. T. ..(2)
23%.. N. ..(4)	60%.. N. ..(4)	75%.. L. ..(3)
27%.. R. ..(5)	40%.. R. ..(5)	70%.. H. ..(6)
46%.. H. ..(6)	20%.. H. ..(6)	65%.. R. ..(5)

The figures in parentheses give the order of the six men according to rate of movement in each limb—(1) being the slowest and (6) the quickest.

each man for each arm. It will be seen that they agree in every case, with the exception of the right arm in two men placed next to one another in order of rate. The numbers are small and the method crude, but it confirms the clinical impression that, as a rule, the stiffer arm is the slower arm. It may, however, again be emphasised that the less stiff arm is also much slower than normal, and that an arm may be very slow when the stiffness is not appreciable to the observer.

It also seemed desirable to see whether the slowness bore any relation to the muscular strength of the patient. This was tested in a very rough way in these same six men, and no such relationship was found. Actually the slowest man was the most powerful muscularly.

Conclusions.

(*a*) Definite slowness of movement is found in Parkinsonians in an arm which shows no other abnormal signs.

(*b*) The difference in rate of the two arms is usually not much greater than may be found in normal persons.

(*c*) Belladonna and hyoscine, if effective at all, usually act to almost the same extent on both arms.

(*d*) In all but the advanced degrees of slowness there is little or no abnormal flagging.

All these facts taken together support the view that the primary seat of diminished rate of movement does not lie in the peripheral motor apparatus, and that it is, therefore, probably in the central nervous system. This is the primary factor in causing slowness of movement, to which others may be added secondarily. Thus, the primary diminution of rate may be increased by a functional element the extent of which can be unmasked by a suitable mental stimulus. It varies considerably in different cases and at different stages.

In most cases it is not marked in the lighter or medium stages, but as the disease progresses may become an important factor in increasing the slowness. Changes in the peripheral motor apparatus may further magnify the disability. Of these, muscular "stiffness" seems clinically the most important and attempts at its measurement support such a view. Possibly this factor plays a part in causing the extreme flagging found in very slow cases. Actual muscular weakness does not seem to enter into the slowness recorded in these measurements to any extent comparable with that of stiffness.

The phenomenon of "sudden stoppage," seen in two cases of advanced Parkinsonism in one arm only, requires further investigation.

These conclusions support the views expressed by Kinnier Wilson [1] in his Croonian Lectures of 1925 that akinesia is the result of more than one factor and that the condition of the peripheral motor system is no more than one of the causes and not necessarily the most important. Cruchet,[2] from clinical observations and from the experimental work of his pupil, Delmas-Masselet, has also come to the conclusion that bradykinesia is independent of hypertonus.

My thanks are due to Dr. Elsa Paige, my assistant in the clinic for encephalitis cases at the Sheffield Royal Hospital, for much laborious work in taking records; to Drs. W. J. N. Vincent and F. T. Thorne at the South Yorkshire Mental Hospital for their aid in the investigation of cases there; and to Dr. C. G. Imrie for constant help.

The expenses connected with this investigation have been defrayed by the Medical Research Council, for which I also desire to express my thanks.

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THE SILENT GAP IN AUSCULTATORY ESTIMATIONS OF BLOOD PRESSURE.

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IN 1918 Tixier [1] noted, in the course of numerous blood pressure estimations, certain cases that showed a zone of silence extending over 20–30 mm. H., preceded and followed by a zone of clear arterial sound. He mentions it casually as a curious phenomenon for which he could offer no explanation. It is probable, therefore, that until 1918 the silent gap was uncovered and that Tixier was the first to notice it. In the next year Gallavardin and Tixier [2] recorded a case of aortic stenosis in which there was a marked discrepancy between the readings for the systolic pressure as determined by the oscillometric and the auscultatory methods respectively. On carefully investigating the series of sounds heard on auscultation they found a silent zone between the first sounds heard and those appearing further down the auscultatory curve. They regarded the phenomenon as extremely rare and stated that this was the first time that they had encountered it in many thousands of estimations. Shortly after this Poulain [3] recorded his experience of the same abnormality and came to the conclusion

at it was a sign of aortic stenosis. In the same year tienne and Richard [4] noted its occurrence in the sence of aortic stenosis, and in 1921 Gallavardin d Barbier,[5] as the result of further investigation, ated that the "trou auscultatoire," as they called was not pathognomonic of aortic stenosis and that, fact, it was more commonly met with in other nditions; they found that in people over 60 with rtension the phenomenon was not rare. About e same time Barbier [6] stated that among the old en of the Hospice du Perron he had found it in one t of every two patients. He with others regarded e "trou" as the acoustic equivalent of the anacrotic lse. For the last six years, therefore, the silent gap, lled in France the "trou auscultatoire," has had full cognition by French physicians, and it is remarkable at it should have escaped notice in this country.

The Auscultatory Sequence.

Before describing the silent gap it will be useful to e an account of the routine method adopted for imating the blood pressure, and to mention the in features of the so-called "auscultatory curve."

After applying the armlet of a Riva-Rocci sphygmomanoter, the pressure in it is rapidly raised to about 250 mm. and then allowed to fall slowly and steadily while the erver listens with his stethoscope over that part of the chial artery which lies nearest the lower margin of armlet. The pressure registered by the manometer when first sound is heard is taken as the systolic pressure, the point at which the loud sounds suddenly become s is taken as the diastolic pressure. After this point is sed and the pressure has fallen another 5 mm. or so the nds usually cease. The proceeding should be repeated e or twice until consistent readings are obtained. It is portant to control the readings for the systolic pressure by pation of the radial artery. Usually the first sound appears he ear at a level which is a few millimetres higher than that which the pulsations of the radial artery become palpable.

The series of sounds heard, from their first appearce at the systolic pressure to their final disappearance t below the diastolic reading, constitute what rotkow described as the auscultatory curve, but prefer to call it the auscultatory sequence. The uence of sounds can be more or less clearly divided o four zones, following one another in a continuous es, of which the order is constant but the extents he second and fourth zones vary considerably not y from one individual to another but also in the he individual under different conditions.

irst zone: Constant in type and in extent, of short ation and easily missed, as the sounds are soft and dull. first sound in this zone marks the systolic pressure.

econd zone: Variable in extent and in the quality of sounds, which are like murmurs. It is in this zone that, ertain cases, the silent gap is found.

hird zone: The most distinctive of all. The sounds loud and slapping and increase steadily in intensity to aximum, when they suddenly change into the minimal nds of the fourth zone, the point of diastolic pressure.

ourth zone: Composed of soft, dull sounds. It is usually hort duration but may extend to zero.

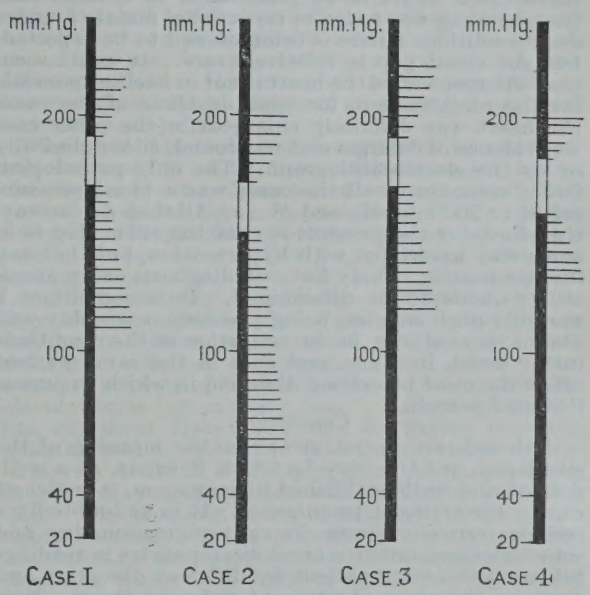
The silent gap or *trou auscultatoire* is found in ain cases dividing this series more or less near centre. It appears to the ear as a zone of nce instead of the continuous series of sounds of auscultatory sequence. It may extend over a nge of 20 to 60 mm. Hg. It always occupies the nd zone, which it more or less replaces, sometimes earing nearer the upper extremity and sometimes rer the lower. An important characteristic of the nomenon is that at the time when the sounds tted by the compressed artery have ceased to be ible, the movements of the arterial wall below armlet, as measured by an oscillometer, show no tement, and, moreover, the pulse wave may easily elt at the wrist.

Typical Cases.

few examples may be quoted.

ASE 1.—*Arterio-sclerosis; neurasthenia.*—A male, aged 62. history of previous illness until six months ago; since he has suffered from general debility and occasional cks of palpitations and giddiness. Passing large quantities of urine. On examination no evidence of disease was found apart from the cardiovascular system. His urine contained no albumin. Heart: Apex-beat external to nipple line. Impulse forcible. No murmurs. Pulse 66. Regular except for occasional intermissions. Radial arteries thickened and tortuous. Blood pressure 225/110. Silent gap between 190 and 170. Wassermann reaction: Negative. Electrocardiograph: Normal rhythm. Left ventricular preponderance, T1 flat. He was kept under observation for nine months. During this time there were no signs of circulatory failure. The silent gap persisted throughout, varying slightly in extent. His condition improved considerably with rest and tonic treatment.

CASE 2.—*Syphilitic aortitis; aortic incompetence.*—A male, aged 69. Four years previously was an in-patient at the London Hospital with functional dyspepsia. At that time the aortic second sound was accentuated and there was a suggestion of a diastolic murmur. He came to out-patient's complaining of a return of the same symptoms six weeks previously. Pain, flatulence, vomiting, and loss of weight. On examination there was no evidence of disease apart from the cardiovascular system. Heart: Apex-beat felt with difficulty internal to the nipple line. A musical diastolic murmur heard well all over the precordia and conducted into the carotids. Pulse 56, collapsing; radials much thickened. Blood pressure 200/60. Silent gap 170 to 150. Wassermann reaction: Weak positive. Radioscopy: Aorta normal. Electrocardiograph: Normal rhythm, T1, 2, and 3 upright, no left or right preponderance. He was under observation for four months. During this time the silent gap was constantly present but variable in extent.



A diagrammatic representation of the silent gap, as found in the four cases described. The vertical column represents the pressure registered by the mercury manometer. The horizontal lines represent the sounds heard with the stethoscope as the armlet pressure falls from the systolic to the diastolic levels. The silent gap is denoted by a blank in the pressure column. To simplify the diagram no attempt has been made to represent the complete auscultatory sequence.

CASE 3.—*Arterio-sclerosis; Myocardial Failure.*—A male, aged 70. Complaining of swelling of his legs with breathlessness on exertion. On examination he had moderate œdema of his legs, slight enlargement of the liver, and a trace of albumin in his urine. Heart: Apex-beat forcible, external to nipple line, no murmurs, aortic second sound accentuated. Pulse 56; arteries thick and tortuous. Blood pressure 220/115. Silent gap from 190 to 170. Radioscopy: Moderate enlargement of the heart. Electrocardiograph: Normal rhythm. (N.B.—The practitioner who sent this case up for special examination was puzzled by the fact that he could never make the blood pressure more than 170, whereas we always made it well over 200.)

CASE 4.—*Toxic goitre; simple tachycardia; paroxysmal fibrillation.*—A female, aged 54. On examination she had some œdema of her legs and a trace of albumin in her urine. Heart: Apex-beat forcible and external to the nipple line, harsh systolic murmur at mitral and aortic areas. Pulse 110 to 130, arteries not palpable. Blood pressure 200/130. Silent gap from 185 to 160. Radioscopy: Moderate enlargement of

the heart to the left. Electrocardiograph: Simple tachycardia.

The diagram illustrates these cases and gives a graphic representation of the phenomenon.

Clinical Significance.

An analysis of these cases throws little light upon the significance of the silent gap, and the following points are brought forward for what they are worth. Hardening and tortuosity of the radial arteries was noted in three of the cases, but in the remaining one the arteries were soft and could not be felt. The electrocardiogram, taken in every case, showed none of the abnormalities that we expect to find in cases of pronounced coronary disease. Only two of the cases showed clinical evidence of myocardial failure; of these, Case 3 was an old man of 70 years whose heart was labouring under a systolic pressure of 220 mm. Hg, and the other, Case 4, was a middle-aged woman with a toxic goitre, who had a persistent tachycardia and occasional paroxysms of fibrillation. In neither of these cases would it be permissible to assume that the silent gap was a sign of myocardial disease; under such conditions failure is common and to be expected, but the silent gap is relatively rare. It would seem that enlargement of the heart is not in itself responsible for the phenomenon, for while in three of the cases the heart was definitely enlarged, in the other case no evidence of enlargement was found, either clinically or by the electrocardiograph. The only pathological factor common to all the cases was a blood pressure raised to 200 mm. Hg and over. All that we can say, therefore, for the present, is that the silent gap is in some way associated with hypertension, but that any further bearing it may have on diagnosis or prognosis still remains to be determined. It is sometimes a variable phenomenon, being present on one day and absent on another; an investigation of the conditions under which it comes and goes in the same patient offers the most promising direction in which to pursue further research.

Conclusion.

Although we do not yet know the meaning of the silent gap, yet the very fact that it exists, as a well-defined and well-established phenomenon, is sufficient excuse for giving it prominence. It is undoubtedly a serious source of error in sphygmomanometry and sometimes accounts for great discrepancies in readings taken on the same patient by different observers and even by the same observer at different times. It is scarcely surprising that the clinical value of blood pressure estimations has been called in question, when it is realised that, in addition to the many recognised sources of inaccuracy, an error of 20 per cent. may creep into our readings unawares. By adopting a standardised technique for taking blood pressure, such as the one we have outlined above, one of the most serious causes of inaccuracy may be avoided, and, moreover, we should go far towards ensuring that figures obtained at different times and by different observers shall be comparable. The most valuable practical point that arises from these observations is the importance in taking the systolic pressure of always raising the armlet pressure, to begin with, to well above 200 mm. Hg.

It was at the instigation of Dr. John Parkinson that these observations were made, and I must express to him my most sincere thanks for much valuable and kindly assistance and for his permission to publish the cases, which were all under his care. I must also thank Dr. D. Evan Bedford for supplying me with literature on the subject.

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ANALYSIS OF A SERIES OF CASES AFTE SUPRAPUBIC PROSTATECTOMY,

WITH SPECIAL REFERENCE TO THE REAPPEARANCE OF THE PROSTATE.

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IN the title of this paper the word "recurrenc was avoided and the term "reappearance" st stituted. The chief reason for this was the lack agreement amongst observers as to the nature what is universally called "prostatic hypertroph" and as to the extent of removal of the gland in suprapubic operation. As will appear later, so observers hold that in hypertrophy there is no locali adenomatous overgrowth, but that the whole prost gland undergoes hyperplasia, whence it follows t suprapubic prostatectomy is a true enucleation the prostate itself, and reappearance of the gl can only be attributed to imperfect removal. Oth maintain that a hypertrophied prostate is a prost with adenomata in it, and that operation is mer a shelling-out of these new growths. Obviously t can leave the whole of the true prostate *in situ* w its power of forming new adenomata unimpair Others, again, and especially some of the Fre surgeons, affirm that a hypertrophied prostate never anything but an adenoma of the periureth glands, encroaching on the limited space occup by the prostate in its rigid capsule, and compress it so as to convert it into a false capsule whic left after operation. This can then regenerate int normal gland. "Reappearance," therefore, constitu the most suitable term.

This paper presents the results of investigati on a series of 29 consecutive cases discharged cu from hospital after suprapubic prostatectomy benign hypertrophy. The object was not only to to assess the after-results of the operation, but a and more especially, to investigate the incidence degree of reappearance of the prostate, either norma or with overgrowth. Of these 29 cases one died the meantime, and two could not be traced. number was thus reduced to 26; 16 of these had b operated on more than two years before the invest tion, 7 more than one year before, and 3 less t one year before.

The complete follow-up consisted of a sl questionaire, rectal examination, cystoscopy, posterior urethroscopy with a continuous irrigat urethroscope. Nineteen cases underwent the examination. The other seven supplied answers the questionaire, but owing to infirmity, poverty other causes were unable to attend for the phys examination. In one of the cases shown as answe the questionaire, cystoscopy was not possible, ow to a stricture of the bulbous urethra.

In the table each case is set out in two lines; first line contains the findings before operation, the second those after operation. This method tabulation allows of easy comparison of pre- post-operative states, and of a rough assessmen the benefit or otherwise of operation to the individ

The various headings may now be considered detail.

Age-incidence of Prostatic Hypertrophy.

Astley Cooper[1] said of hypertrophy of the prosta "It is the consequence of age and not of disea Brodie[2] went even further, saying that increase the size of the prostate was an invariable accomp ment of senility. "When the hair becomes g and scanty, when specks of earthy matter begi be deposited in the tunics of the arteries, and whe

hite zone is formed at the margin of the cornea, t the same period the prostate gland usually, I might erhaps say invariably, becomes increased in size." uch a statement scarcely needs Thompson's figures[3] o disprove it. He examined a series of cases of 164 ubjects at or above the age of 60 years. No selection as made, and the subjects were taken as specimens average lives at these ages. He found definite ypertrophy of the prostate in only 56, a percentage 34, though in a further 16 cases he mentions some nall tumour of the prostate. Marion[4] also examined series of 200 individuals of ages between 50 and 70, id found prostatic hypertrophy, as judged by ctal examination, in only 42 per cent. of these. nerefore, though we may deny Brodie's statement at the prostate is always enlarged in the senile, e must admit that it is so in a fair percentage of y series of cases over a certain age.

The following table (A) gives the ages of our patients the time they originally presented themselves for amination.

Table A.

Ages between			
50 and 60 years	9 cases		34 %.
60 and 70 „	10 „		39 %.
70 and 80 „	7 „		27 %.

is falls into line with Marion's views that cases gin to occur after the fiftieth year and attain a ximum incidence from about the sixtieth year. cording to our figures, the main incidence falls ually on the sixth and seventh decades, though te later years still supply a fair percentage. The es given in Table A are those at which patients ught advice. In order to arrive at a truer indication the age of onset, one must deduct, in each case, t time elapsing between the first appearance of mptoms and the first examination at out-patients. is gives us a new Table B.

Table B.

Ages at onset of symptoms.			History of gonorrhœa.
50–60 years	11 cases	42 %	6 cases.
60–70 „	10 „	39 %	1 case.
70–80 „	5 „	19 %	1 „

is rearrangement shows that most of the subjects prostatism begin their troubles between the ages 0 and 60. There is no way of knowing the duration degree of prostatic hypertrophy in the pre-symptotic period, but it must be considerable, since some he prostates removed must have taken a fair time ttain their final proportions. Several investigators e tried to find at what age the anatomical changes stituting hypertrophy begin. Motz and Péréarnau[5] mined a series of 61 subjects of all ages for adenomata of the prostate, though none of the cases sen had shown any symptoms of hypertrophy ing life. They found 30 instances of prostatic ertrophy, occurring at the following ages :—

Between 45 and 50 years of age	20 %.
„ 50 and 60 „ „	29 %.
„ 60 and 70 „ „	50 %.
„ 70 and 90 „ „	79 %.

Sin and Burckhardt[6] did post-mortem examinations of he prostate of 300 cases, none of whom had shown an sign of prostatic hypertrophy during life. They reported the following findings :—

Cases Showing Hypertrophy of Prostate.

Ages 35–40	13 %.	Ages 60–70	56 %.
„ 40–50	25 %.	„ 70–80	50 %.
„ 50–60	31 %.	„ 80–90	54 %.

T se figures would seem to show that after 60 years of age half the male population have some degree of h ertrophy of the prostate, though only a proportion of hese show symptoms.

urther, it can be seen that the lesions begin ier than is generally believed. Our youngest case w aged 53, but many younger have been recorded. M ion[7] has removed a voluminous prostate, which h caused four years of retention, from a man of 4 Another of his patients was aged 23, and he speaks of a case of Mudd's, a negro aged 17, who showed a large hypertrophy, verified by microscopic examination. Kenneth Walker,[8] in his book on the "Enlarged Prostate," records two of his own cases in men aged 42 and 43 respectively.

History of Gonorrhœa and Sexual Function.

Judging by the patients' statements, the only criteria, it seems that gonorrhœa has some definite influence in precipitating hypertrophy. Table B, of ages at onset of symptoms, shows that 6 out of the 11 cases of hypertrophy in the youngest class of patient volunteered a history of gonorrhœa, and these six form 75 per cent. of the total numbers with a history of venereal disease. Chronic inflammation, and especially gonorrhœa, was one of the first factors incriminated in the ætiology of enlarged prostate, but the association was difficult to prove. Wichmann[9] searched for inflammatory changes but found them only occasionally (in 5 out of 25 cases). Gotzl,[10] investigating the histories of previous inflammations in 334 cases of hypertrophy, found that only 30 per cent. had had gonorrhœa—figures which come very near to our own findings of 8 cases in 26. The most, then, that can be imputed to gonorrhœa is a precipitant action. Hypertrophy, in subjects with a history of gonorrhœa, appears at an earlier age than in healthy subjects.

The sexual functions were investigated by questioning the patients as to their inclinations for coitus, the frequency and character of erections, and their powers of ejaculation. It was found that, speaking generally, the patients showed no change at all as a result of operation; that is, a patient who was leading a sexually active life before the operation found his activity practically unimpaired by it. Erections were just as strong and ejaculation just as forceful as before, but a small number (six) were definitely affected adversely. These results run contrary to those of Marion,[11] who said "Undoubtedly ejaculation is lost in every case." Debout d'Estrées[12] has explained Marion's results by saying that the seminal fluid is ejaculated into the prostatic cavity. It is very doubtful if this happens. As we have seen in our patients, ejaculation was unaffected by operation. The prostatic cavity of which d'Estrées speaks exists only rarely; the posterior urethra is restored to normal by the reappearance of the prostate. Our cases also throw some light upon the part played by the testes in the ætiology of prostatic hypertrophy. Lydston[13] attributed hypertrophy to the onset of genital activity and stated that, after the twentieth year, few men have a normal prostate. MacEwan[14] thought that the testes exerted a regulating effect on the development of the prostate by their secretion. If there is senile atrophy of the testes, this regulation ceases and the prostate develops abnormally. Paul[15] held the same views, and compared the influence of the testicle on the prostate with that of the ovary on the breast. Rovsing,[16] believing that the prostatic secretion stimulated the vitality and motility of spermatozoa, thought that prostatic hypertrophy was a reflex compensation for senile degeneration of the testis. Unfortunately for most of these views, the prostatic hypertrophy is an adenoma, and not a true hypertrophy with hyperfunction. As may be seen from our cases, the state of the testis bears no relation to the state of the prostate, whether we regard hypertrophy as an adenoma or not. In some of our cases the sexual functions had ceased for as long as ten years before operation, in others it was as vigorous as ever.

Symptoms.

Frequency.—Although frequency of micturition has long been stressed as one of the most important and constant features of enlarging prostate, it is difficult to account for this symptom. It has been suggested that the enlargement stretches the smooth-muscle vesical sphincter, makes it patulous, and allows urine to trickle into the posterior urethra, thus giving rise to the desire for micturition. This view does not

account, however, for the frequency associated with the ball-valve type of enlargement—namely, the small prostatic uvula which causes but little stretching. In later stages, however, the frequency may be explained mainly as a result of the cystitis which is so frequently established. Without going further into possible causations, it may be admitted that nocturnal frequency is always present. In many cases there is also frequency of micturition during the day, although this feature is less likely to be noticed by the patient, who is much more worried and impressed by the necessity of having to rise to micturate at night. In our series every case but one volunteered a history of increased frequency both by day and by night. In the one exception the notes do not mention frequency at all. In 11 cases the nocturnal frequency was cured by operation—that is, it was reduced to a single occasion at most. In almost all the other cases there was marked improvement. This alleviation of what is perhaps the most distressing symptom of enlarged prostate is one of the greatest benefits accruing from the operation, which reduces the nocturnal frequency to bearable limits and allows the patient to get some undisturbed rest.

Stream.—The stream in all cases, where notes were made concerning it, except one, was poor both in force and volume, but whether diminished as a result of atonicity and weakness of the bladder, or as a result of prostatic obstruction, it was almost always greatly improved by operation. In one or two cases it was undoubtedly worse afterwards—for example, Case 4, in whom it is interesting to note also that he has developed marked enlargement of the left lobe of his prostate since operation.

Pain.—Preoperative pain was not a marked feature of the series. This falls into line with the findings of other observers. Under this heading several symptoms have been included. Some patients complained of a vague perineal discomfort, some of lumbago, and others of suprapubic discomfort. In some cases the chief complaint was one of urgency rather than of pain; discomfort occurred if they held their water too long. Often pain was present only at the onset of micturition.

It has not been thought necessary to classify such a variety of pain, which, in any case, only affected about half the cases. In all instances but one (Case 4) it was relieved by operation.

Hæmaturia.—Spontaneous hæmaturia was rare, and occurred in only three cases.

Difficulty of Micturition.—This section includes some of the symptoms considered under the heading "Stream." Patients vary in the meaning they attach to the word. Difficulty for some proves to be increased straining in order to start or maintain micturition; for others, it is delay before the beginning of the flow, lessened flow during the act or the longer time taken at each micturition, no matter how small. For most of them, however, it meant delay and straining at the onset of micturition, and 13 of our patients complained of this, while there were many other complaints of slight delay at onset but without straining. In every case the symptom was abolished by operation.

Incontinence.—As might be expected, incontinence was not a feature of the cases. Indeed it is difficult to see why there should be incontinence at all, as long as the external sphincter is intact, and provided that the bladder is not distended to overflowing. The sole instance of incontinence in this series was post-operative in a patient of 83. (Case 20.)

Retention of Urine.—In six cases acute retention was the trouble that brought the patient for treatment, but in each of these six there was a previous history of nocturnal frequency, or of change in the character of the stream, or both. In one case (Case 26) the patient had had retention over a period of two months, occurring one year before the attack which brought him to out-patients. We can conclude that retention is one of the most frequent accidents of hypertrophied prostate, and that it is often th condition which forces the patient to seek treatmen

Rectal Examination.—In 21 of our cases there is record that rectal examination was made befor operation. Definite prostatic enlargement was note in 20 of these. In the remaining cases there is n note whether such examination was made or no In five cases there was obvious enlargement aft operation of one or other prostatic lobe as felt p rectum. These cases are indicated by two or mo plus signs in the table. A single plus sign mea that the lobe was present and palpable but n enlarged. In three cases no trace of the prosta could be felt. It is interesting to note that Marion states: "Clinically, also, it would appear tha even though the adenoma is removed, the prosta remains. In many prostatectomised patients rect examination will reveal masses which have all th characteristics of normal prostatic lobes."

Cystoscopy.—Our series was strikingly free from ar abnormality on cystoscopic examination. In 11 cas nothing abnormal was found, and seven of the had been subjected to cystoscopy before operatio when enlargement of the prostate was noted in eve case, trabeculation of the bladder in four instance and marked cystitis in one. At the post-operati examination two cases showed some trabeculatio Both had been cystoscoped previous to operatio but no record had been made of the presence absence of trabeculæ. Five cases in our post-operati series showed intravesical enlargement of the glan This would point to a recurrence of the adenoma in these cases. The absence of intravesical proje tion in the remaining cases does not negative t re-formation of the prostate itself, but simply reve the absence of adenomata.

Reappearance of the Prostate.

Of the 19 patients examined with the urethroscop only two cases still showed total absence of th prostate. In all other cases one or both lobes we present, sometimes normal, sometimes increased size. In one case there was some definite degree obstruction. In the greater percentage of cases th prostate reappeared after suprapubic prostatectom This lends great support to the view that hype trophy of the prostate is really periurethral in origi Naked-eye examination of specimens removed operation shows that the term "hypertrophy scarcely fits the facts. Hypertrophy of an orga consists of an increase in its volume while the orga retains its normal structure. In the type of prosta termed "hypertrophied," however, the increas volume is due to the addition of neoplastic mass Every specimen of "hypertrophy" shows on secti "spheroidal bodies," consisting of a varying numb of rounded nodules, which are easily enucleated fro a bed of compressed fibromuscular tissue. The spheroidal bodies are made up essentially of glandul acini with but little connective tissue. Some a cystic, and more rarely the smooth muscle conte may be so great that they appear as veritable aden myomata. According to Marion,[18] in certain cas of early adenomatous change these spheroidal bodi may be seen inside a smooth circularly-dispos muscle capsule which can only be the unstriat vesical sphincter. It seems well proven that t essential lesion is the presence of adenomata.

Many authorities have maintained that the increa of glandular tissue is not a real multiplication glandular acini, but simply an enlargement of pr existing glandular spaces. This dilatation is said be the result of duct occlusion by newly form fibrous tissue, following round-celled infiltratio The primary lesion is held to be a chronic inflamm tion, with a secondary enlargement of the glan If the sclerosis involves many small ducts the proce is general, while if it involves one or two large duc the enlargement is localised. Undoubtedly one c find inflammatory foci in certain cases, but the pro that inflammation does not play the most importa

Number of case.	Date.	Age at time of re-examination.	History in years when first seen.	History of gonorrhœa.	Frequency. Day.	Frequency. Night.	Stream.	Pain.	Difficulty.	Retention.	Incontinence.	Hæmaturia.	Rectal examination. Prostate. Right lobe.	Rectal examination. Prostate. Left lobe.	Rectal examination. Prostate. Mid. lobe.	Cystoscopy. Prostate. Right lobe.	Cystoscopy. Prostate. Left lobe.	Cystoscopy. Prostate. Mid. lobe.	Cystoscopy. Trabeculation.	Cystoscopy. Cystitis.	Urethroscopy. Prostate. Right lobe.	Urethroscopy. Prostate. Left lobe.	Urethroscopy. Prostate. Mid. lobe.	Sexual functions after operation. No change.	Sexual functions after operation. Worse.
1	1/24	74		−	10	4	Poor.	+	+		+		+	+						−				+	
2	10/26				4	2	Good.	+	−		−		+	+						−				+	
3	1/24	73	2	−	10	4	Fair.	−	−				+	+						−	+			+	
4	9/26				4	1	Poor.	−	−				+	+							+			+	
5	4/24	68	6	−	10	4	Good.	+	+		−		+	+										+	
6	10/26				4	0	Poor.	−	−				+	+										+	
7	2/24	70	2	−	6	8	Bad.	+					+	+										+	
8	9/26				40	20							+	+											
9	8/24	60	1/12	−	16	8	Good.	−	+	+	+		+	+										+	
10	9/26				32	4	Poor.	+	+				+	+										+	
11	6/22	73		−	12	6	Good.	+	+	+			+	+										+	
12	9/26		6/12	+	6	2	Good.	+	+				+	+										+	
13	2/24	55	1	+	8	1	Good.	+	+				+	+										+	
14	9/26				6	6							+	+											
15	5/23	76		+	16	2	Good.	−	+			+	+	+										+	
16	10/26				6	3	Poor.	+	+				+	+										+	
17	2/23	63	2	+	8	0	Fair.	+	−	+			+	+										+	
18	11/23				4	8	Dr.	+					+	+	+										
19	9/26	67	6/12	−	12	2	Good.	−	−				+	+					Tr.	+				+	
20	2/23				5	3	Dr.	+					+	+											
21	9/26	61		−	12	1	Good.	+	+				+	+					Tr.					+	
22	11/24		4	−	5	6	Poor.	−	+	+		+	+	+											
23	11/26	65		−	4	0	Good.	+	+				+	+										+	
24	3/25				+	+	Poor.	+	−	+			+	+	+										
25	9/26	73		−	4	2	V.g.						+	+										+	
26	6/25		2	+	6	2	Good.	+	+	+			+	+										+	
27	9/26	61		+	4	2	Good.	+	−				+	+										+	
28	9/25		1/12	+	6	2	Good.	+	+				+	+										+	
29	11/25	50		+	5	1							+	+											
30	12/25		6/12	+	200	12	Fair.	+	−				+	+										+	
31	10/26	56		−	5	1							−	−											
32	10/26		9/12	−	+	+	Good.	+	+			−	+	+										+	
33	5/26	59		−	6	2							−	−											
34	10/26				+	+																			
35	2/26	65		−	5	3	Good.	+	−		−		+	+										+	
36	12/26		3/12	−	8	2	Good.	−	+			+	+	+										+	
37	7/24	76		−	3	4	Good.	+	+	−			+	+										+	
38	9/26				2	+	Poor.	+	+				+	+										+	
39	6/23	83	3	−	16	+																			
40	10/26				+	+	Poor.	+	−				+	+										+	
41	10/22	64	5	+	6	2	Fair.	−	+	−	+		+	+										+	
42	10/26				4	1	Poor.	−	−	−			+	+										+	
43	6/23	75	2	−	5	4	Good.	−	+	−			+	+										+	
44	10/26				6	3																			
45	5/25	74	2	−	10	5	Good.	−	−	−			+	+										+	
46	12/26				5	0																			
47	4/27	68	1	−	5	2	Good.	−	+	−			+	+										+	
48	6/25				+	+																			
49	12/26	70	1	+	4	1	Good.	−	+	−			+	+										+	
50	9/22				+	+	Poor.	+	−	−			+	+										+	
51	1/27	71		−	5	3	Good.	+	−	−			+	+										+	

The top line in each case shows the findings *before* operation, and the second line those *after* operation.

Dr. = Dribbling. V.g. = Very good. Tr. = Traces.

part lies in the fact that often no inflammatory foci can be found in hypertrophy. The specimens on which the conclusions were based may have included many cases of chronic prostatitis without true hypertrophy.

If we admit that the change is essentially an adenomatous one, we may ask ourselves if the adenomata arise from the prostate itself. According to Marion,[19] Rokitanski in 1861 mentioned the possibility that the nodules may develop from the periurethral glands, and independently of the prostate. In 1902, Albarran and Motz,[20] in their "Anatomy of the Hypertrophied Prostate," described two types of median lobe occurring in hypertrophy, one which develops from that part of the prostate in front of the ejaculatory ducts, and another arising from the periurethral glands near the neck of the bladder. Motz and Péréarnau[21] went so far as to conclude that "Hypertrophy of the prostate springs solely from the central periurethral glands and from the stroma surrounding them. The prostate takes no part in the formation of the neoplastic masses; it simply undergoes an atrophy, more or less pronounced." Tandler and Zuckerkandl,[22] however, gave a prostatic origin to the adenoma and stated that all prostatic hypertrophy arises only from that part of the prostate between the urethra and the ejaculatory ducts. Lendorf,[23] after many examinations of prostates removed from subjects ranging from the fœtus to the senile, makes the dogmatic statement that hypertrophy never originates in the prostate, but invariably arises from the periurethral glands. The same conclusion was reached by Papin and Verliac[24] after an examination of almost 200 specimens, embryological or removed at operation or autopsy. They reached the conclusion that hypertrophy of the prostate is an affection, not of the prostate, but of the posterior urethra. It is a process giving birth to suburethral glands, a process which is cut short during the development of the embryo but which is resumed as the prostate atrophies. Histologically, it is easy to demonstrate that such an origin is possible. In a horizontal section of a normal prostate one can see two kinds of glands: (*a*) central submucous glands inside the ring of smooth muscle in this region; (*b*) peripheral glands outside the smooth muscle ring.

The submucous glands (*a*) can be found inside the muscle ring, from the neck of the bladder down to the membranous region. They are the periurethral glands, and just below the bladder neck, but above the verumontanum they form two well-developed groups laterally on either side in the submucosa. There is also a group extending down the anterior wall of the urethra. The peripheral glands (*b*) lying outside the smooth musole ring are the proper prostatic glands, and constitute four groups. There is an almond-shaped group on either side of the urethra, but more posteriorly. A third group lies between these two lobes and between the urethra and the ejaculatory ducts. These form the middle lobe. Finally, there is the posterior lobe, a fourth group between the lateral lobes but behind and below the ejaculatory ducts.

An adenoma may arise in any of these groups of glands, periurethral or prostatic. Marion[25] states that if a section is made at autopsy of the tissue between the prostatic neoplasm and the rectum there is a fibromuscular capsule behind the neoplasm which separates it from compressed and atrophied glandular tissue, and which can be nothing else but the prostate which has been pushed back. Cuthbert Wallace,[26] in 1902, demonstrated the presence of prostatic tissue in the capsule surrounding the adenoma. "If microscopic sections are made from a part of the 'capsule,' that appears entirely fibrous to the naked eye, it will be found that such a section contains glandular elements either in the form of slightly altered alveoli or of long slit-like cavities containing epithelium." Chirié[27] records similar findings at post-mortem examinations after recent prostatectomies. He writes: "Beneath the capsule, recognisable by its vessels and nerves, one can see a thin layer of prostatic tissue." Moreover, Freudenberg[28] reports that in three cases after prostatectomy he has found prostatic glandular tissue in several places in the wall of the cavity.

The conclusion may therefore be drawn that the adenoma which is termed "hypertrophy of the prostate" develops by pushing back the gland itself usually posteriorly, and the affection, as Motz and Péréarnau[21] said, instead of constituting a hypertrophy of the gland is characterised rather by atrophy. It may be seen, then, that the tendency is to regard prostatic hypertrophy as an adenomatous change affecting the periurethral glands and growing at the expense of the prostate. We summarise here the evidence in support of this view.

(*a*) The facility of enucleation which is a characteristic of adenomyomata.

(*b*) Enucleation respects the ejaculatory ducts. If the adenoma arose in the prostate, a large proportion of prostatectomies should involve the more outlying parts of the gland and lead to tearing of the ducts traversing the gland.

(*c*) The possibility of finding the compressed prostate after the so-called prostatectomy.

(*d*) The infrequency of recurrence of obstruction owing to total removal of the urethra with its submucous glands. If the adenoma were prostatic in origin, the atrophied prostatic tissue left in the wall of the cavity should give rise to more adenomata in a greater number of instances.

(*e*) The fact that, although the lateral lobes of the true prostate lie really behind the urethra, in hypertrophy they are in intimate relationship with its lateral walls.

(*f*) The adenomata are always in close relation with the urethra and never grow exclusively towards the rectum as they might be expected, at least occasionally to do, if they were derived from the centre of a true prostatic lobe.

(*g*) There is practically no proof that the prostate itself gives rise to the neoplastic masses.

It is easy, then, to understand why recurrence of obstruction is so rare in our series, while the prostate itself reappears in the majority of the subjects examined. As stated above, the complete removal of the periurethral glands with the urethral mucosa ensures against recurrence of adenomata and, therefore, of obstruction, while the presence of the prostatic remains in the wall of the cavity equally ensures the reappearance of the prostate itself. Freudenberg states recently that he once operated for removal of a second prostate, and that after suprapubic enucleation nodules can often be felt remaining in the cavity. If these are not removed recurrence can follow. He advises that the lining of the cavity—that is, the wall containing the true prostate—should be dissected away after removal of the prostate.

Four specimens were recently shown at the Royal Society of Medicine, one each by Sir John Thomson Walker, Mr. Swift Joly, Mr. Sidney MacDonald, and Mr. Girling Ball. All of these were apparently prostate glands in varying stages of hypertrophy although the patients had been previously operated on for a similar condition. Girling Ball's case is referred to by Kenneth Walker[29] in his monograph on the "Enlarged Prostate." Speaking here of recurrence Walker says:—

"Adhering to the walls of the prostatic cavity will always be found small masses of prostatic tissue, since the operation of enucleation can never be regarded as a complete removal of the prostate. If the enucleation has been imperfectly performed, the quantity of prostatic tissue left behind may be sufficiently great to cause a recurrence of symptoms by their subsequent growth. Even when the operation has been skilfully carried out, cases occur in which the growth of residual prostatic tissue is sufficiently great to necessitate a second prostatectomy. Mr. Girling Ball records a case in which he performed a suprapubic prostatectomy twice on the same patient, an interval of 12 years intervening between the two operations. The prostatic mass removed at the second operation was as large as that removed previously, both specimens being in St. Bartholomew's Hospital Museum. Recurrence, however, is of extreme rarity, provided the removal in the first instance has been complete."

Kenneth Walker is here referring to recurrence of obstruction—a very exceptional event. According to our findings, however, reappearance of the prostate itself is the rule, but this, unlike the periurethral glands, rarely gives rise to adenomata, and therefore seldom causes obstruction.

The question of recurrence has an important bearing on the surgical technique of prostatectomy. It is impossible by the suprapubic operation to dissect away the whole of the wall of the cavity to ensure complete removal of the prostatic tissue. Indeed it is almost certainly not desirable to do so. Recurrence of obstruction can only be due to one of three causes. First, the tags of mucosa at the edge separating the bladder from the prostatic cavity may unite and form a diaphragm across the neck of the bladder. This is so easily dealt with later by diathermy that it should not be allowed to prolong, by five minutes if further dissection, the already severe operation of prostatectomy. Secondly, the prostatic "hypertrophy" may recur. As we have seen, recurrence of obstruction due to the formation of new adenomata is exceedingly rare, because the whole of the anterior and lateral walls of the urethra and the posterior wall above the verumontanum are thoroughly stripped, ringing away the submucous glands. Prostatic tissue is left in every case, and it is doubtful if any amount of prolongation of the operation will remove it. The third cause of recurrence of obstructive symptoms is also the commonest—namely, massive fibrosis of the original prostatic cavity—and this, we think, most commonly follows attempts to dissect the cavity and its edges clean. Sometimes it results from the enucleation of the normal prostate along with a small adenoma. If the adenoma is small though it may cause obstruction but still leave the prostate in very much its original condition. To remove a prostate of this type requires scissors dissection, because the true fascial capsule is now invaded by the surgeon; such a prostate is usually referred to as "fibrous." Many of these would be better left *in situ*.

If this view of the periurethral origin of prostatic adenomata be correct, it would seem that no benefits can accrue from the exposure of these enfeebled and aged subjects, after the shock of enucleation, to a prolonged dissection of the prostatic cavity. Simple and speedy operations give the best results.

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Clinical and Laboratory Notes.

A CASE OF MENINGEAL ENDOTHELIOMA OF THE INTERPEDUNCULAR SPACE SIMULATING PITUITARY TUMOUR.

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THE following case presents much that is of interest, both from the view of diagnosis and treatment.

The patient, a man aged 49, general manager of a large iron and steel company, was admitted to Ruthin Castle in January, 1926, with the following history. Enjoyed good health until October, 1918, when there was a severe attack of so-called influenza accompanied by violent pain in the head behind the eyes. After recovery remained pretty well until April, 1920, when his sight began to fail; an ophthalmic surgeon at this time diagnosed pituitary enlargement. For the next two years he improved under thyroid and pituitary extract by the mouth. In July, 1922, he was admitted to Duff House, Banff, where a diagnosis was made of pituitary tumour with pressure on the right optic tract. The basal metabolic rate (B.M.R.) was 86 per cent. (normal= 100 per cent.), a carbohydrate-tolerance test was found to be normal, a blood count showed 11,800 white cells per c.mm. with 50 per cent. of small lymphocytes, and an X ray of the head revealed a pituitary fossa with an ill-defined floor and the sphenoidal sinus apparently invaded from above and behind. Under medical treatment the patient remained fairly well and was able to work hard until the summer of 1925, when his health definitely became worse. He easily became fatigued, could no longer concentrate mentally, suffered abnormally from cold, his sight got worse, and constipation became very troublesome. During the last week before admission his memory for recent events became bad, there were evening rises of temperature up to 101° F., and he suffered from five attacks characterised by twitching of the face, movements of both arms, involuntary passage of urine, and unconsciousness for two or more hours.

On examination he showed the following signs of dyspituitarism. The skin was glossy, thin, and finely wrinkled round the temples, and at times sweated profusely; the hair of the scalp was scanty and the pubic hair showed the female distribution; the B.M.R. was low—66 per cent.—and a carbohydrate-tolerance test gave a curve suggestive of increased tolerance to sugar; there was slight but definite enlargement of both hands and feet; he had an acromegalic type of face, and had undergone a loss of sexual power.

On examination of the nervous system visual acuity was found to be diminished, there being a complete left lateral homonymous hemianopia with a positive hemiopic pupillary reaction (Wernicke). The right fundus oculi showed an abnormally pale disc with fine arteries and slightly congested veins—in other words, an early primary optic atrophy; the left fundus showed similar, though less advanced, changes. Tendon jerks were brisk in both upper and lower extremities, though more definitely so on the left, and on this side there was an extensor plantar response. Abdominal reflexes were sluggish on the left side.

The pulse-rate was slow—namely, 64 beats per minute—and the blood pressure low—108/84 mm. Hg. A blood count showed 8100 white cells per c.mm. with a moderate relative lymphocytosis, but was otherwise normal. The blood Wassermann was negative.

Radiological examination of the head revealed a pituitary fossa with an ill-defined floor, the posterior clinoid processes rarefied and displaced backwards, and numerous calcareous plaques above and behind the dorsum sellæ. The sphenoidal sinus was dense and appeared to be invaded and compressed from above; the maxillary antra and frontal sinuses were clear.

Discussion on Diagnosis.

A provisional diagnosis of mixed adenoma of the pituitary was made. Points in favour of this diagnosis were the symptoms of dyspituitarism and the radiological evidence of distortion of the pituitary fossa. On the other hand, it is much more usual for an adenoma of the pituitary to enlarge primarily upwards and forwards and so cause pressure on the optic chiasma with a resulting bitemporal defect in the visual fields. In this case, however, pressure signs from the first were on the right optic tract and the later signs of pyramidal tract involvement—

namely, the increased tendon jerks, sluggish abdominal reflexes, and extensor response on the left side pointed to a backward extension of the growth into the interpeduncular space with pressure on the right peduncle. Points in favour of meningeal endothelioma were the great amount of bony destruction revealed by the X rays—a simple adenoma of the pituitary usually producing a more or less globular expansion of the sella turcica—the presence of calcareous plaques, and the clinical evidence of backward extension.

The signs of gradually increasing intracranial pressure—namely, the epileptiform seizures, the mental change, the impairment of vision, and the frequent headaches—made active interference absolutely necessary. The question of operative treatment or deep X ray therapy was considered, and operation was finally decided upon on the grounds that the exact nature of the tumour could only be guessed at, and it was thought right to give the patient the chance of the condition being a simple cyst.

Operation.

This was performed by Mr. Percy Sargent, the patient being under intratracheal ether.

An osteoplastic flap was turned down in the right frontal region and the right frontal lobe exposed. Intracranial pressure was high. The dura was incised and the convolutions of the brain were seen to be flattened. The frontal lobe was gently lifted up from the orbital plate of the frontal bone, but the intracranial tension was too high to gain the necessary access; a lumbar puncture was therefore performed and a test-tube full of blood-stained cerebro-spinal fluid withdrawn. The right frontal lobe was again gently lifted and the optic chiasma and right optic nerve came into view. There were numerous arachnoidal adhesions round the right optic foramen. A small bluish body appeared immediately to the medial side of the right optic nerve. On further lifting the frontal lobe a large portion of growth, about the size of a cherry, gradually extruded to the right side of the right optic tract. The capsule of the growth was incised and a large quantity of soft, grumous, semi-diffluent matter sucked away. As far as could be made out the growth extended at least one and a half inches backwards from its anterior extremity, and also crossed the middle line. The diaphragma sellæ appeared to be intact. The osteoplastic flap was replaced and the operation completed. Patient stood the operation well and the pulse-rate was 84, regular, and good volume at its close. Unfortunately, however, the patient never regained consciousness and died suddenly about three and a half hours later.

Section of a portion of growth showed the latter to be a malignant meningeal endothelioma (Greenfield).

This case is of interest in that a tumour arising extrinsically to the pituitary and its fossa nevertheless produced typical symptoms of pituitary dysfunction—a phenomenon no doubt due to local pressure on, and vascular changes in, the pituitary body. The exacerbation of symptoms which led to operative treatment was probably occasioned by a temporary swelling of the tumour, which was undergoing degenerative changes.

My thanks are due to Mr. Percy Sargent and Dr. E. I. Spriggs for permission to publish this case.

A CASE OF RUPTURED MALARIAL SPLEEN: SPLENECTOMY WITH RECOVERY.

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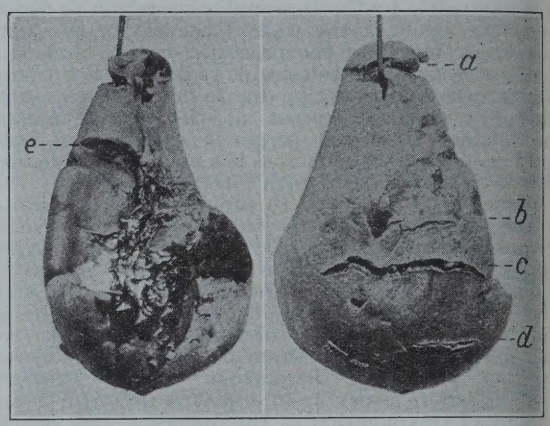
THE following case may be of interest, as most ruptured malarial spleens in Jamaica cause sudden death and a coroner's inquest, and especially as this case was not seen till 30 hours after the rupture.

The patient was a native male adult, aged 37 years. He had been well known to me for several years as a malaria patient with a large spleen. On August 22nd, 1926, at about 11 A.M., he was thrown from a "buggy" and fell, chiefly on the abdomen. Shortly after the accident he vomited twice and during the following night suffered from severe abdominal pains; he passed two blood-stained stools. He was not seen by me till 6 P.M., August 23rd (30 hours after the accident) and was then in a collapsed condition with a pulse of 120. He complained of severe pain all over the abdomen, worse in the hypogastrium and right iliac fossa. The abdomen was rigid and very tender all over, with dullness in the flanks; the superficial reflexes could not be made out positively.

He was removed to hospital and at 7 P.M. the abdomen was opened through a right rectus incision. The peritoneal cavity was full of blood, for the most part dark and clotted but showing also evidence of profuse recent bleeding. The



Malarial spleen showing ruptures *a*, *b*, *c*, *d* on outer surface, and *e* on inner surface.

abdominal organs were quickly examined and the spleen was found ruptured (ruptures A and C being easily felt). This wound was rapidly closed with forceps and an upper left rectus incision made, but as there was some difficulty in delivering the spleen an incision was made along the margin of the lower ribs to meet it. The spleen was then delivered easily, the pedicle clamped and ligated, and the organ removed. At this stage the patient's condition was so poor that, after quickly cleansing the peritoneal cavity both wounds were quickly sutured in single layers and a drainage-tube inserted into the pelvic cavity (removed 48 hours).

Salines were given continuously during the operation and rectal salines for the next 24 hours (I find it difficult to give blood transfusions in the island on account of the prevalence of syphilis and the aversion of natives to act as donors). The wounds showed superficial sepsis for a few days; otherwise convalescence was uninterrupted.

The man was discharged in four weeks apparently quite well and has not returned to me with an attack of malaria but reported four weeks later with an attack of gonorrhœa.

The weight of the spleen on the morning after operation was 16 oz. Ruptures A, B, C, D were on the outer surface; rupture E was on the inner surface. Unfortunately rupture A was torn a little deeper by the photographer.

Conclusions.

1. The hæmorrhage must have stopped temporarily but was renewed by the jolting over four miles of rough road to hospital. 2. Evidently no large vessel was implicated. 3. The two blood-stained stools may have been due to a contusion of the bowel which did not appear on the peritoneal surface, or to the common practice of the peasantry of dosing themselves with calomel to remove "bruised blood." 4. The lack of shock was striking. I have often observed this among natives.

DOUBLE LESIONS OF THE STOMACH AND DUODENUM.

BY GEORGE VILVANDRÉ, M.R.C.S. ENG.,
ASSISTANT RADIOLOGIST TO THE LONDON HOSPITAL.

THE presence of two ulcers in the same patient, one gastric and one duodenal, is very liable to cause error when the diagnosis is based solely on clinical grounds. Under careful X ray examination the condition may, however, be accurately diagnosed. Such a patient may give a history of acid eructations, epigastric pain, not severe, but coming on two hours after food; and of waking up at night with pain

at any time between 12.30 and 6 A.M. He may state definitely that food relieves pain so that a duodenal ulcer may be suspected. Another patient, after suffering from such symptoms for many years, may complain, in addition, of rare attacks of vomiting, and seek medical aid on his friends' advice because of the brown colour of the vomits. There may or may not be loss of appetite, loss of weight, and some anæmia. The clinical picture is still further obscured by the duration of the symptoms, the patient stating that he has had indigestion for years and been careless about his meal-times. According to the predominance of some of the symptoms, the diagnosis made will be that of duodenal or gastric ulcer or possibly pyloric carcinoma.

I have seen half a dozen cases lately where such a history was given, with slight variations, and in these I have found a double lesion, one gastric and one duodenal. One patient showed, under X rays, a dilated stomach with the great curvature quite a hand's breadth below the iliac crest and a penetrating ulcer the size of a threepenny piece on the small curvature. There was also a duodenal ulcer. Judging from the onset of symptoms the gastric ulcer had, in all probability, been present for 10–12 years, during which time the patient had been treated for "indigestion," and the duodenal lesion had been active some four years. Another patient gave a history of 23 years of pain, one and a half hours after meals, without waking up at night. There was no vomiting nor hæmatemesis, and melæna was not noticed. There may be periodical attacks lasting a few weeks with intervals of five or six months.

I believe that an accurate diagnosis of double lesions of the stomach and duodenum before operation is of great importance. I have lately seen a few cases where operation had been performed for duodenal ulcer and within two years an X ray examination showed a large penetrating gastric ulcer on the small curvature. This was in no sense a jejunal ulcer. I have little doubt that these patients were not only suffering from a duodenal ulcer at the time of operation, but also had an ulcer on the small curvature of the stomach. This result is obviously unfortunate, as unless a second operation is performed there is a possibility of malignant degeneration of the gastric ulcer. In one case the patient had had a duodenal ulcer sutured after acute perforation. The ulcer was described as quite small; no gastro-jejunostomy was done. Nine years elapsed and recently when I X rayed him I found evidence of an active duodenal ulcer and a large penetrating gastric ulcer.

Summary.

Double lesions of the stomach and duodenum may occur, and their presence obscures the clinical diagnosis. In operation for duodenal ulcer a gastric lesion should always be sought or excluded. Gastro-jejunostomy for a duodenal lesion does not necessarily cure or prevent the formation of a gastric ulcer.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF LARYNGOLOGY.

EXHIBITION OF CASES AND SPECIMENS.

AT a meeting of this Section held on Nov. 4th, the incoming President, Mr. H. S. BARWELL, was conducted and a number of cases were shown.

Mr. T. B. LAYTON showed a laryngeal case which the Section had inspected in May of this year. When first seen on March 31st, 1927, the patient, a man of 65, had a six months' history of hoarseness and showed irregular swelling of the whole length of the right cord. He improved considerably after dental treatment but in May still showed slight swelling and two small white spots like heaped epithelium. These at operation proved to be flaky pus and there was no evidence of malignancy. At the present time the appearances were practically what they had been at the end of March.

The PRESIDENT remarked that when he saw the case in May he thought it probably malignant and advised an exploratory thyrotomy. It was, he said, far better to explore than to allow a cancer to advance beyond reach of treatment.

Sir STCLAIR THOMSON said that several of his cases of pachydermia had turned out to be tuberculous.

Mr. NORMAN BARNETT reported that the elderly man with a growth of the hard palate shown at the summer meeting had died from general toxæmia, but his growth had been proved to be non-malignant.

Laryngo-fissure for Intrinsic Carcinoma.

Sir STCLAIR THOMSON presented four medical men who had had laryngo-fissures 2¼, 3, 4½, and 5½ years previously for malignant disease. All were in active practice. He emphasised the importance of taking the growth out in one piece and showed sketches illustrating the operation. The piece should embrace the anterior commissure.

CASE 1.—Aged 40. In March, 1922, had sudden onset of hoarseness after singing. Right cord found invaded by an irregular, mammillated growth with necrotic, white, ulcerating points over the centre. After two months' voice-rest the voice was better but the cord was still ulcerated. Biopsy did not confirm the clinical diagnosis of malignancy. At laryngo-fissure in May a typical squamous-celled carcinoma was removed, together with a good part of the right ala. The patient was well within a week and his wound closed in ten days. He reported himself as "very fit but not noisy" now.

CASE 2.—Aged 52. Had been hoarse for two months when first seen in 1923. The right cord showed a characteristic, cupped, grey infiltration of the anterior half, while the rest of it showed a red, beefy infiltration. A squamous epithelioma was removed and the wound closed in 20 days.

CASE 3.—Aged 56. Had been husky six months when seen in 1924. An irregular, knobby, whitish, slightly cupped, abraded thickening was found on the front half of the right cord. After two months of voice-rest and observation the appearance got worse and movement of the right cord began to flag. The laryngo-fissure in December was followed by a hæmorrhage and the tracheotomy-tube was found to have slipped out; a "Jumbo" tube should have been used. The patient returned home in 12 days. After three years he smoked two or three pipes daily and was in excellent health.

CASE 4.—Aged 62. Had had ten months' huskiness before he was seen in 1925. A portion of a papilloma was removed for examination. The right cord had a superficial, whitish, moist, irregular, papilloma-like infiltration. After the usual operation he was out of bed on the second day and home on the eleventh. The wound closed within a week. The growth was a typical squamous-celled carcinoma.

The speaker called attention to the following points:—

Clinical Features.—The lesion was limited in all cases to the cord, and did not invade the subglottic area or the anterior commissure. The anterior half of the cord was invaded in all cases, in some entirely and in all chiefly. No impairment of mobility.

Diagnosis.—Apart from naked-eye appearances and general considerations, the diagnosis was confirmed by the exclusion of tubercle and lues, and the results of voice-rest and observation—two months in two cases.

Operation.—This occupied 50 to 60 minutes; but as much as 52 minutes (Case 1) had been occupied in arresting hæmorrhage before the patient was removed from the table.

Thyroid Ala.—Removed in all cases, allowing a free approach, more perfect excision, and better control of bleeding. Quicker healing: no stenosis. A further justification was the pathologist's demonstration that the growth, even in the limited and favourable cases, extends deeply into the muscular tissue.

Tracheotomy.—Performed in all cases, thus securing complete protection against descent of blood, mucus, and septic material into the bronchi and facilitating a light, smooth, and satisfactory anæsthesia.

Tracheotomy-tube.—In one case removed at the termination of the operation; in the others left in place till the same evening (i.e., seven to eight hours).

Bleeding.—Guarded against by careful preoperative precautions—abstinence from alcohol and tobacco; careful diet; 48 hours' rest in bed beforehand; smooth anæsthesia and intratracheal and intralaryngeal injection of cocaine.

Postoperative Hæmorrhage.—This had occurred in one case and the source was *outside* the laryngo-trachea. This emphasised the importance of arresting all venous and thyroid-gland oozing before opening the trachea.

Convalescence.—No shock. Wide-open windows night and day. Sitting posture. Up to 24 hours; out in three or four days; and in no case more than three weeks in the home.

Simplifications.—No alkaloid (morphia, atropine, heroin, &c.) at any time. No intratracheal packing or applications (e.g., cautery, Whitehead's varnish, antiseptic powders, diathermy, &c.). No artificial feeding.

Results.—Rapid recovery. Good general health, improved as a rule by increased attention to rules of hygiene and avoidance of fatigue and vitiated air. A voice generally as good as before operation and sufficient to carry on satisfactorily the duties of medical practice. Lasting cure.

The subglottic case, said Sir StClair Thomson, was most difficult to diagnose; laryngo-fissure, however, was often quite successful. To be certain of having completely removed the growth he always had three sections cut; the anterior and posterior parts of the removed piece should be entirely free of cancer cells. Even this was not quite reliable, as malignant cells were apt to go deep. He agreed with Mr. Lionel Colledge that the cases absolutely suitable for laryngo-fissure were those with a mobile cord and without subglottic growth. Others were on the borderline.

Mr. E. WATSON-WILLIAMS mentioned hemilaryngectomy as a measure for dealing with borderline cases.

Mr. H. TILLEY described three cases of recurrence; in one of them laryngo-fissure had been performed, and 15 years later a small nodule appeared on the scar. After its removal another nodule grew and eventually the whole larynx became a mass of epithelioma. In the second case 19 years elapsed before the recurrence was heralded by intense stridor; there was also a growth in this man's prostate. In the third case a growth appeared in the opposite cord after 15 years. It was therefore not wholly true to speak of "cure" five years after operation. He was reminded of the dictum of an old teacher: "Once cancer always cancer," if the patient lived long enough for the recurrence to have its chance.

Mr. F. O'MALLEY spoke of excellent results without removal of the thyroid ala.

Mr. L. COLLEDGE did not approve of hemilaryngectomy; if half the larynx were removed the skin must be turned in to replace the lost epithelium and the skin-flap was apt to collapse. Patients were little better off than after laryngectomy.

Sir STCLAIR THOMSON referred to two hemilaryngectomy cases of his own. Both had to wear a tracheotomy-tube permanently, but they had a voice. It was more fatal than the complete operation, but had the advantage of saving part of the cord. He had had a case two and a half years ago with recurrence on the opposite cord; there had not been any recurrence so far after a second laryngo-fissure. He had also known two cases of recurrence in the local glands and one in the mediastinum.

Mr. COLLEDGE showed a case in which laryngectomy had been performed four years ago on account of recurrence of epithelioma after laryngo-fissure, and another in which lateral pharyngotomy had been performed to remove an epithelioma of the epiglottis. Both showed excellent results. The artificial larynx was a "Tapia."

The PRESIDENT expressed surprise that more patients did not use some form of artificial larynx.

Mr. W. S. SYME said he had found external laryngotomy very useful.

Mr. COLLEDGE replied that in this case the operation had started as a laryngectomy, but on finding that it was not necessary to remove more than the epiglottis, it had developed into a subhyoid pharyngotomy. This involved cutting both superior laryngeal nerves, and the lateral approach was therefore preferable, besides giving a better view. Moreover, the function of the pharynx was much better, in spite of some dysphagia, than after a subhyoid laryngotomy.

Cardiospasm and Achalasia.

Mr. H. BELL TAWSE showed a boy of 11 who had suffered for two years from vomiting on going to bed. The Wassermann was negative. X ray showed obstruction at the lower end of the œsophagus with great dilatation above. There were several calcareous glands at the hilus and a dense shadow from the manubrium to the third interspace, possibly that of an enlarged thymus. A second case was a girl of 10 who had had difficulty in swallowing when 2 years old. After bronchitis in her fourth year it got worse and was diagnosed as enlarged thymus. At 7 the attacks became very severe and the child ran about crying for air. In some attacks consciousness was lost; during them thick mucus collected and was vomited, causing relief. A transthoracic operation revealed enormous dilatation of the œsophagus and was followed by death. There was no autopsy. The X ray photograph showed good diaphragmatic movement and no delay in passage of food to the stomach. A shadow of uniform opacity extended from the first to the last rib, encroaching on the right lung from behind. The only explanation not ruled out by the clinical condition was a dermoid cyst growing from the posterior mediastinum. It was hard to believe that that shadow was entirely caused by the dilated œsophagus.

Mr. Tawse showed for comparison X rays of another case with a kink in the œsophagus. For treatment he relied on Hurst's mercury tube.

Mr. W. M. MOLLISON showed a photograph of an S-shaped kink in the middle of the œsophagus of a woman who had symptoms of achalasia. He hoped to do an œsophagostomy.

Mr. E. DAVIS said he had seen several similar cases. One patient came up every six months for dilatation with Hurst's mercury tube, and the œsophagus was gradually getting larger. Dilatation relieved but did not cure.

Mr. TILLEY showed a man of 58, a tinsmith who had had achalasia with vomiting for 18 months before admission to hospital last August, when he was emaciated and very weak. He had had an uncomfortable feeling in the gullet and "lump in the throat" since 1915. He was treated with Hurst's mercury tubes, which he soon learned to pass himself; he had no further vomiting after the first dilatation. He spent 11 days in hospital and now passed a bougie once a week, ate anything he likes, and had put on 14 lb. in weight.

Replying to a question, he said that he preferred the mercury tube to the bougie because the former was much less likely to "hitch" and the patient could use it himself. It seemed simple and satisfactory. He had never had the courage to try mechanical dilatation with an expanding steel instrument. Referring to Mr. Tawse's case, he had only once seen a large dermoid producing dysphagia and stridor; this case might possibly be similar.

The PRESIDENT did not think Mr. Tawse's first case was one of achalasia, but of something more obscure.

Foreign Body in the Larynx.

Mr. M. VLASTO showed a girl of 19 who had swallowed an open safety-pin on July 10th. X ray showed it in the larynx, the safety guard peeping through the rima glottidis. There was very slight dysphonia. As the pin could not be dislodged by gentle movements the patient was taken from the dark room to the theatre for an operation. A laryngotomy failed to reveal the pin and splitting the thyroid fared no better. A further endoscopy showed that it had slipped down the right bronchus during transit to the theatre. It was removed without difficulty.

Mr. H. KISCH showed a case of

Sphenoidal Sinusitis.

The patient was a man of 36 who had had intense frontal pain periodically since 1916. There was some

catarrh and a grossly deflected septum. X ray revealed opacity of the right sphenoidal sinus, which could not be lavaged because of the septum. At a submucous resection a culture was taken which showed pure growth of *B. mucosus capsulatus*. Complete cure followed.

Mr. WATSON-WILLIAMS said that this man had had marked loss of memory and of concentration, and that he had a most difficult and intractable temper. His mentality had been so altered that he had contemplated suicide. Suicide was not infrequently due to sinus infection, but those cases were never investigated post mortem. He asked members to communicate examples to the *Journal of Mental Science*. Mental symptoms made or marred the welfare of the patient and his environment, and might clear up with removal of the sepsis.

Mr. J. ADAM referred to two cases of sphenoidal sinusitis, both of which had been under the care of alienists. The condition might be the initial stage of a frontal lobe abscess.

Mr. VLASTO said it was very common to get a complete change of mentality after operating on a case of sinusitis, single or multiple.

Mr. L. POWELL showed a case of

Post-cricoid Carcinoma Successfully Treated by Diathermy.

The patient was a woman of 56 who had had catarrh of the throat for a year. For three months she had had dysphagia, loss of weight, and at night a slight cough, bringing up watery fluid. A large edunculated irregular tumour obscured the larynx and extended forward to the epiglottis. At the operation in April a Davis gag and no other form of suspension was used. A week later the patient was again examined and doubtful spots touched with the diathermy point. Six months later she continued well and had gained 3 lb.

Sir J. DUNDAS-GRANT demonstrated a simple ligature applicator for tonsillar vessels,[1] a glass or metal tube to facilitate Coakley's slip knot, and showed a case of

Severe Asthma Relieved by Submucous Resection.

The patient, a man of 50, had for many years been obliged to get up every night and sit at a table in order to breathe. After removal of a very deflected septum his attacks entirely disappeared, as did his spasmodic.

Miss ELEANOR LOWRY showed a woman of 46 who had been treated for

Lupus Erythematosus.

She had noticed deformity of the nose two weeks before. There were lupoid nodules all over the nose and both cheeks, large sequestræ in the nose, and a palatal perforation. The Wassermann reaction was positive. After an injection of novarsenobillon the lupoid condition rapidly cleared up, and after three injections it had completely disappeared.

Mr. W. MOLLISON showed a case of fixation of the left vocal cord due to a blow on the neck. There had been no sign of hæmatoma of the cord at the time.

SECTION OF ANÆSTHETICS.

A MEETING of this Section was held on Nov. 4th, when Dr. CECIL HUGHES, the President, opened a discussion on the

Present Position of Spinal Anæsthesia.

It was now 30 years, he said, since the first experiments had been made in the production of analgesia by injection of drugs. In 1885 an attempt had been made to alleviate spinal caries by injecting cocaine into the spinal canal extradurally, and intradural injection had soon followed; but the poisonous aftereffects of cocaine had not encouraged the investigators to persevere. The isolation of other chemical bodies, however, had brought about renewed activity and injection of these anæsthetics was almost universal. The mortality of spinal anæsthesia was very low, and the deaths recorded as having followed its use were mostly due to the serious condition of the patient at the time, to an unwise choice of the anæsthetic, or to an overdose having been given. There was every prospect that, with the exercise of sounder judgment and a more careful technique based on longer experience, the mortality from the spinal injection of stovaine per se would diminish to the vanishing point. Spinal injection could be utilised to produce analgesia of the whole body—including the thorax, head, and neck—or (as was more usual) for operations on the abdomen and lower limbs. As regards the drugs employed, the use of general anæsthesia as an adjuvant, and the technique, the practice varied a good deal in different countries. Glucose was not used so often now as formerly, as it seemed adversely to affect the respiratory mechanism. Preliminary narcotics were always given in quantities varying from a sedative dose to one that induced twilight sleep. The President had found no records of serious after-effects apart from fatalities from overdosage—minor sequelæ were infrequent and lasted only a short time. The method should not be used for a patient with very low blood pressure, but in normal people the danger of a fall in blood pressure after the injection was not great when due precautions were observed. One paper, reviewing 6000 cases of spinal analgesia at Los Angeles, recorded six deaths, four of them said to have been surgically inevitable, two following an overdose. Few of the ill-effects lasted longer than three days. Another series of 410 mentioned nausea occurring in 2 per cent., hysteria in 3 per cent., and vomiting in three patients; there were no post-operative sequelæ. In a series of 20,000 cases, 90 per cent. of the operations were below the diaphragm and were carried out under spinal anæsthesia. Some of the operations which had been abandoned under general anæsthesia were resumed under spinal analgesia and carried to a successful issue.

In the President's experience, spinal analgesia was unsurpassed in acute abdominal conditions. No other method gave such quick and perfect relaxation; functional disturbance was minimal, peristalsis was promoted, and tympanites relieved. In his own most recent 500 cases the average fall of blood pressure was 30 per cent.; the fall was greater in those with high pressure than in normal people. His custom was to give a preliminary dose of gr. 1/6 morphia and gr. 1/10 atropine; in the vast majority of patients morphia was both helpful and beneficial. He used 5 per cent. stovaine, 10 per cent. sodium benzoate, and caffeine citrate in distilled water, and this combination gave him less anxiety about blood pressure. The point of injection was between the third and fourth spines, and light general anæsthesia was induced by means of C.E. (chloroform and ether) mixture, inhaled three minutes after starting the injections. When using stovaine, tactile sensation might remain though pain was abolished. He kept his needles sterilised in absolute alcohol, and before use he rinsed them with stovaine. This was certainly the anæsthetic of choice for urological cases, in which it was particularly necessary that there should be little shock and that the after-effects should be minimal. He had not employed it in cases where there was low blood pressure, myocardial degeneration, or spinal trouble. The fall of blood pressure was greater in prostatectomy than in most other operations; it occurred soon after the gland had been removed. Almost invariably the pressure recovered to the extent of 10 to 20 per cent. He had not employed oxygen as a routine. In his own series there were no fatalities, and in less than 1 per cent. was a restorative or any antishock medication used. Manipulations involving insult to nerves, which without nerve-blocking would have produced shock, did not do so. With spinal anæsthesia constant blood pressure readings should be taken, but the pulse-rate was the most important criterion. When the Trendelenburg posture had been employed the patient's normal position should not be restored for two or three hours—that is to say, the head should be kept lower than the body. Nausea, headache, and

[1] THE LANCET, Oct. 8th, p. 760.

vomiting had been rare in his cases. Absence of headache he attributed to the use of a very fine needle; it should be noted that headache occurred after simple lumbar puncture in 5 per cent. of cases. Psychical causes played an important part in producing after-effects in a conscious patient, and these could only be averted by employing light general anæsthesia. He had had two cases of paresis of the external ocular rectus, in one of which the condition lasted several weeks. These were difficult to explain, seeing that the analgesia was limited to the lower part of the canal. Possibly they were associated with a general fall of blood pressure. There had also been a few cases of stiffness of neck muscles after the injection, but this was only transitory. When undesirable after-effects —such as bronchitis, abdominal distension, vomiting, and jaundice—followed operation under a general anæsthetic, it was difficult to say that the anæsthetic was the sole cause; but spinal anæsthesia did not offer the same loopholes, and sequelæ had to be attributed to the method.

Chloroform, said the President, had perhaps had its day for routine work. The relative mortality of spinal anæsthesia and gas and oxygen could only be ascertained by publication of failures as well as successes. Even now he was convinced that the use of the spinal method in difficult pelvic operations—especially urological and gynæcological—had considerably lowered the post-operative mortality.

Discussion.

Mr. P. LOCKHART-MUMMERY said that from the point of view of the condition of the patient three or four days after operation ether and chloroform were unsatisfactory; there was sickness, a lowered vitality, and lack of appetite for the food which was so much needed to assist the repair of the tissues. Some patients were sick even after spinal anæsthesia, but the speaker was prepared to accept the risk, and he was a great believer in spinal anæsthesia at present. Regional anæsthesia was also a valuable method, but was still on its trial. He did not see the need for it in operations below the level of the umbilicus. When accidents such as paralysis occurred he thought they must be due to faulty technique, careless use of the needle, injection of the wrong substance, or sepsis. The only troubles he had seen after spinal anæsthesia were a lowering of the blood pressure, one case of diplopia, and one of paralysis of the external rectus, which passed off in six weeks. He strongly emphasised the need for keeping the head and chest of the patient lower than the rest of the body; he did not allow spinal anæsthesia to be used unless there were facilities for moving the patient on a trolley. Strychnine should always be kept handy, as on two occasions in his experience the phrenic nerve had been affected, though the patients survived. He thought it was wise always to use the same solution—the one to which the administrator was accustomed. He did not notice any idiosyncrasies to stovaine.

Mr. G. GORDON-TAYLOR said that in his view the cases most suitable for spinal analgesia were those requiring operations on the lower abdomen or lower limbs. He also used it when general constitutional disease made it undesirable to give a general anæsthetic and when the operation to be undertaken promised to be specially difficult—e.g., removal of carcinoma of the pelvic colon. When shock was expected, and when the period of anæsthesia had to be long, he preferred splanchnic anæsthesia, coupled with light general anæsthesia. He still thought, however, that for certain operations in the neck there was no anæsthetic so good as chloroform, and he would be sorry if that drug were to disappear from the anæsthetist's armamentarium.

Mr. H. M. PAGE considered that the induction of light general anæsthesia before making the injection added greatly to the patient's comfort. He had not met any bad sequelæ from the method. For prostatic cases, even when the Trendelenburg posture was employed, he had cut the injection dose down to 0·03 c.cm. coupled with very slight general anæsthesia. He agreed about the benefit of using a very fine needle for the injection, especially from the point of view of subsequent headache, and he liked to have the patient in the sloping position from the time of the injection. Before giving the spinal injection he examined the patient's reflexes as a routine. He was not favourably inclined towards chloroform.

Dr. Z. MENNELL disapproved of the view, apparently held by some, that for operations below the nipple spinal anæsthesia was the one for choice. Various surgeons agreed that headache was a common sequel sometimes of such severity that it was difficult to deal with; and neurologists recognised a condition following the use of this method which they knew as "stovaine tabes." Another objection was the very definite fall of blood pressure after its use. He was accustomed to use camphor or strychnine after making the puncture. His objection to the method was the uncertainty of its action; he did not feel he could accurately assess the dose necessary for the best result in a given case. He had not noticed great loss of appetite in patients after the ordinary administration of ether.

Dr. C. F. HADFIELD said he had given stovaine injections for large gynæcological operations for 12 years, and he had not seen the bad after-effects which had been spoken of. He did not know of a case of the so-called stovaine tabes. But he thought that the mortality from spinal anæsthesia had been greater than that from ether or other anæsthetics of the same class. He was a believer in the value of inducing twilight sleep. Headache was less liable to occur after a prolonged operation than after a short one.

Mr. D. H. EVANS described a case in which he gave 0·75 c.cm. stovaine to a woman weighing 10 st. She was all right for 15 minutes, after which she began to gasp. Artificial respiration was attempted, but soon no air could be got into her lungs and she died, the pulse failing within half a minute. There must have been more than cardiac weakness, possibly some toxic action. He used 10 per cent. stovaine B in saline.

Mr. HOWARD JONES said that years ago he had abandoned stovaine for novocaine, with which he was able to secure perfect relaxation.

Dr. H. E. G. BOYLE said that one death from stovaine had occurred in his practice, and he knew of three others. He believed the mortality from it exceeded that of other anæsthetics. He used gas oxygen, ether endotracheally and they gave as good results, and could be regulated to a nicety.

Mr. ASHLEY DALY thought every patient who had spinal anæsthesia should be kept in bed for several days.

Mr. R. J. CLAUSEN spoke of two cases which were given spinal anæsthesia and operated upon before the Wassermann report was received, which proved to be positive. Both had neurological symptoms accompanied by paralysis of the rectum, lasting respectively three and four months. In some cases requiring operations on the prostate and perineum he thought spinal anæsthesia was better than either ether, or gas and oxygen, or ether and chloroform. But he thought there was a better anæsthesia than spinal—namely, a sacral injection, with caudal block.

Dr. J. BLOMFIELD spoke of a patient who had had spinal anæsthesia for a Wertheim's hysterectomy and had afterwards been paralysed in both lower limbs for a week with incontinence of urine. Careful selection of cases for the spinal method should be made; it was not suitable for all and sundry. Induction of twilight sleep saved the patient distress.

Dr. W. V. HUGHES said that he used twilight sleep before putting in the injection needle. Headache was attributed to moving the patient after operation.

The PRESIDENT, in the course of his reply, said that he only encountered one case of headache after spinal anæsthesia in nine months or a year. Headache was sometimes due, he felt sure, to psychical shock, and this was avoided by light general anæsthesia. It seemed agreed that headaches were prevented by keeping the patient comfortably in bed after the operation. He knew nothing of the "stovaine tabes" which had been mentioned. If it really was an entity it ought to be investigated.

HUNTERIAN SOCIETY.

AT a meeting of this Society held on Nov. 7th, with Mr. MORTIMER WOOLF, the President, in the chair, Dr. JAMES NEAL opened a discussion on the

LEGAL PERILS OF THE DOCTOR.

He thought it strange that the medical man, who had legal obligations above those of the ordinary citizen, should have no instruction in law such as was given to students of accountancy and banking. Even the well-informed and careful medical man was always liable to false charges of negligence, incompetence, or misconduct. All that was necessary was for an insane, hysterical, or aggrieved person to get the idea that he ought to have made a more rapid recovery or had a better result from treatment. The temptation to pay compensation rather than face an action was very great, but every case successfully contested decreased the liability of others to the same oppression. After explaining the implications of the term professional "negligence," Mr. Neal pointed out the danger that juries might mulct a doctor in damages even when it had been proved that treatment had followed the most approved modern methods. It was always possible to criticise any line of treatment and to find a medical witness who would have done differently, and juries would condemn a treatment about which they knew nothing. Routine precautions must be adopted, especially in the matter of examining women patients, and taking X ray photographs. Ordinary examinations might be construed as criminal assault, and failure to examine might constitute negligence. Medical certification bristled with perils, for a doctor was liable for any injury caused by deficiencies in his certificate, or for libel if it had been signed unreasonably or without due care. Doctors ought to be protected from having to pay the costs of a successful defence for certifying under the Lunacy Act. Section 330 of the Act had not given the protection expected of it, though the position would be improved if the recommendations of the Royal Commission became law. Medical assessors, as suggested by the British Medical Association, might help to protect the doctor, but could not prevent actions for libel. Modified, though not absolute, protection should be given to certificates, as it was to the statements of a witness on oath. The Dangerous Drugs Act limited the right of a doctor to prescribe what drugs he conscientiously believed to be necessary. The new tribunal, with power to deprive a medical man of his right to use dangerous drugs, created an impossible situation.

Dr. Neal quoted examples of the danger of performing operations without the explicit consent of the patient and warned doctors against inadvertent breaches of confidence, such as divulging information to a solicitor. An appeal from the police to assist in tracing the mother of an abandoned infant should be disregarded; doctors were not detectives. While the doctor should try to persuade the victim of criminal abortion to inform the authorities, he should beware of giving information himself. In cases of suicide or suicidal intent the chief consideration was the welfare of the patient, and the doctor was bound to take steps to prevent the repetition of an attempt. The obligation of professional secrecy was waived when disclosure was enjoined by Act of Parliament or ordered by the Court; the doctor whose conscience forbade him to speak under these circumstances must take the consequences. If breach of confidence were necessary to prevent a crime, avert serious danger, or safeguard the patient's interests, the medical man must be prepared to justify it afterwards.

Failure to Find a Remedy.

Earl RUSSELL admitted that doctors suffered hardship, but saw no remedy. Nor had the Royal Commission been able to find any solution. No society of medical men desired that doctors should be exempt if they had been reckless or negligent The Bateman case had shocked him profoundly; that was not the sort of thing from which doctors wished to be protected. He deprecated a partial knowledge of the law as more likely to lead doctors astray than otherwise; they would do better to follow the simple rule of honestly doing the best they could for the patient. The law was not unreasonable in this matter, though he admitted that the conflict of medical evidence, inevitable since medicine could never be an exact science, might lead to confusion in the minds of the jury. Doctors, however, very seldom did themselves justice in the witness-box, and they might well benefit from lessons in giving evidence or in answering questions. The injustice of having to pay costs when the plaintiff proved to be a man of straw was common to every member of the community, and it was difficult to see where such costs were to come from except out of the defendant's pocket. He could not conceive any sensible jury declaring that a patient ought to be brought round from an anæsthetic in order to obtain his consent to a second operation for a procedure which could and should have been carried out at the time. Absolute protection was afforded to the witness on oath in the interests of the administration of justice; it could not be given to the doctor certifying under the Lunacy Act, for there were doctors who were careless, reckless, or even not quite bona fide in certifying. A certificate of infectious disease was one of the few instances where the doctor had to guarantee his diagnosis. Juries tended to be hard on doctors, he admitted, but he did not see what medical assessors were to do.

A Legal Peril of the Medical Witness.

Sir HERBERT WATERHOUSE expressed his general agreement with Dr. Neal and said that one of the greatest legal perils of the doctor was the treatment meted out to him in the witness-box by members of his own profession. He had known many cases utterly lacking in substance, cases the defence had thought could be laughed out of court, but he had never known the other side unable to find medical witnesses. These were not always minor members of the profession, and there was a great tendency for certain names to appear time after time. This state of affairs was discreditable to the profession; it was terrible that there should be doctors willing and anxious to give evidence against their professional brethren, and evidence, moreover, which would never be received by members of their own profession if they were on the jury. Referring to the "notorious" Hume-Spry case, he asked if any member of the audience would be prepared to swear an affidavit that he, the speaker, had been sane three years ago. The thing was absolutely monstrous. Yet three such affidavits had forced the Court of Appeal to allow a trial, twice previously disallowed, which cost the Medical Defence Union £5000.

Referring to the danger which threatened the doctor from his association with nurses, he said he wished the public could realise the grievous stare of anxiety the surgeon was in under many circumstances when he committed that crime so terrible, to the laity, of "leaving a sponge inside." He instanced a midnight operation by candle light which he had once had to perform in a farmhouse on a pulseless woman with a perforated duodenal ulcer. He had urged the strange nurse repeatedly to be responsible for the sponges, but when at the end he asked for her final count she assured him they were all there, though he held one concealed in his hand.

Blackmail.

To illustrate the danger of what he would term minor "blackmail," he instanced the man with the hysterical wife who ran a bill with the doctor for a year or so, and when the account was presented threatened an action for negligence if it were pressed. He repeated exactly the same thing with another doctor. Neither doctor was a member of a defence

union and both said: "What is the good of going to court? Let it slide." That was cowardice to their profession. The doctor accused of negligence was bound to follow up the matter for the sake of his profession. If no woman should be examined without the presence of a third party, then a fortiori no anæsthetic should ever be given to a woman alone. Even gas given for a dentist might produce illusions of assault in the mind of a highly-strung patient.

One thing went beyond medical etiquette, and that was the duty owed to the public. If a young girl was engaged to a man known to have florid syphilis, the speaker would advise the doctor to do all in his power to stop the marriage. His last word was: Beware of the telephone. He knew case after case where private messages had been tapped, and quoted one where a patient had left him saying he was about to lunch at a certain club. Half an hour later a voice on the telephone said it was Mr. So-and-So speaking from that club, and asking that a copy of the prescription might be sent to him at that address. As Sir Herbert Waterhouse in this case had given no prescription the fraud was obvious, and the voice proved to be that of a private detective set to watch the patient by his wife.

Mr. RAYNER GODDARD, speaking as a "G.P. of the law," pointed out the "legal peril" of the sub-pœna, which dragged doctors away from their work to give evidence, perhaps in some accident case where they had happened to treat a victim now claiming damages. The great complaint of the doctor was not that he was liable to be brought to court for negligence, but that scientific matters would there be dealt with before unscientific minds. Every profession was open to actions for negligence and the proportion of doctors who ever came to court was remarkably small; there was no peril that need haunt them. The only remedy was insurance. Every profession had members of whom it was ashamed, but he could not agree that it should be impossible for doctors to testify against their professional brethren. It was the bounden duty of a medical man who honestly believed that a brother practitioner had committed a grave wrong on a fellow citizen to further the ends of justice and give evidence against him. He held no brief for juries, and recent legislation seemed to tend more and more to reduce rather than to extend the jurisdiction of the jury. Accused persons accepted this readily enough, save for "old lags" who knew their best chance was to go before a jury. Nevertheless, he did not think the profession would be well advised to get their cases withdrawn from the consideration of a jury or that juries were prone to be antagonistic to doctors whose professional reputation was at stake.

A Judicial Tribunal to Give the Lunacy Certificate.

In the matter of the lunacy certificate, he quoted the considered judgment of Lord Justice Scrutton in the case of Everett *v.* Griffiths. His lordship had there expressed the opinion that there was no contractual duty between the doctor (a Poor-law officer) and the patient, and that the doctor's certificate was not the effective cause of detention. This raised most important questions to which no final answer had been given. In the absence of contractual liability there could be no negligence. Another important point was the position of the doctor who refused to certify and "negligently" declared to be sane a person who next day committed an antisocial act. The trend of opinion in the House of Lords seemed to be that the doctor who examined a patient in any circumstances did owe a duty to the patient to be careful. The law allowed protection to judges and magistrates and those who performed public duties in order that the duties might be fearlessly done. There ought to be some such protection for the doctor signing the lunacy certificate. He suggested that no person should be finally committed to an asylum until he had been reported on by a "judicial tribunal" of three medical men, and that no doctor should be proceeded against if he had referred the case to that tribunal in good faith.

Dr. TEMPLE GREY agreed that doctors themselves were to blame if actions for malpraxis succeeded, but the lunacy certificate was a very different matter. A judicial authority willing to take the responsibility of the certificate must be found; there was no lack of men with double qualifications. The anomaly of the "effective cause" of detention could be rectified as easily as had the problem of jurisdiction in territorial waters after the case of Rex *v.* Keen. The responsibility of the judicial authority ought to be clearly settled and a real legal peril removed from doctors who were not free to avoid it, for doctors as a class were far too aware of their duties as citizens ever to refuse to certify.

Dr. PERCY SMITH disagreed with Mr. Goddard's suggestion of a panel of three doctors, on account of the extra trouble to relatives in acute cases of mental breakdown. The Lunacy Act regarded statements on a certificate as equivalent to a statement on oath; why should they not be so regarded in court? The so-called "protection" clause in the Act was a reversal of the ordinary principle that the onus of proof should be on the prosecution. He advocated the "Provisional Treatment Order," and pointed out that by far the majority of recovered patients were grateful. Actions were brought by those without insight.—Dr. NEAL briefly replied.

NEWCASTLE AND NORTHERN COUNTIES MEDICAL SOCIETY.

A MEETING of this Society was held at Newcastle on Nov. 3rd, Dr. STANLEY RAW presiding. Dr. J. C. SPENCE read a paper on the

Liver and Pernicious Anæmia,

in which he reported the results of cases treated in the Royal Victoria Infirmary, Newcastle, by the liver diet of Minot and Murphy. He first paid tribute to the manner in which these American workers had approached and pursued their researches. It was a beautiful example of the application of the scientific method to a clinical problem, and had yielded a result which would rank as one of the most important discoveries in medicine in recent years. This discovery had a greater significance than the mere provision of a cure for pernicious anæmia, for it would probably throw fresh light on physiological processes, both in the liver and in the generation of blood cells.

Dr. Spence described the results of using a liver diet or an effective liver extract in 20 successive cases of pernicious anæmia, which had been treated in the Newcastle Infirmary since the beginning of the year and contrasted these with ten control cases on older methods of treatment. The results, he said, had merely confirmed those of Minot and Murphy. In 19 cases there had been a prompt and rapid rise of red blood cells with quick improvement of the patient's general condition. One case only had failed to respond, for a reason which was not yet clear. In the 19 successful cases the red cells had risen to more than 4½ millions within two months and in some cases had reached 6 millions. Referring to the tendency to relapse when an adequate amount of liver was not taken continuously, Dr. Spence said that the response seemed to depend on the amount of liver taken, and that harm might result from taking too much liver after the stage of cure had been reached. This was illustrated by three cases in which the patient had eaten a pound of liver a day for three months after the blood cells had been restored to their normal level. In each of these the red cells had reached 6 millions. Two of the patients had developed acute gout, whilst the third had developed the more serious complication of venous thrombosis with œdema of the legs. This suggested that it was necessary to control the dosage of the liver by frequent blood counts, and he thought that in practice it would be found that once a cure had been established it would suffice in most cases to maintain the patient's condition by giving about 8 oz. of liver three times a week. The danger of provoking gout would probably

be overcome when treatment by liver feeding was replaced by the giving of an effective liver extract. Following the lines laid down by Cohn, an extract had been prepared in the Chemical Pathology Department of the infirmary and had been used with success in three cases; 20 to 25 g. of this extract had been given daily to these patients, and had produced a reticulocyte crisis, rise of red cells, and improvement of the symptoms within seven days of its use. The sudden appearance of reticulated red cells in the blood stream was one of the most interesting and important signs of the restoration of the bone-marrow to its normal state of function. A clinical sign which was almost as dramatic was the rapid disappearance of the tongue symptoms. These had disappeared in one severe case before any rise in blood cells had taken place, and before the height of the reticulocyte crisis had been reached.

Dr. Spence discussed the bearing of Minot and Murphy's work on the explanation of the pathogenesis of pernicious anæmia. It appeared, he said, to dispose of the prevalent theory that the condition was due to a hæmolytic process, and probably hæmolytic streptococci in the gut had nothing to do with the disease.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF MEDICINE.

A MEETING of this Section was held on Oct. 28th, Dr. G. E. NESBITT, the President, in the chair.

Dr. H. F. MOORE and Dr. A. R. J. DUNGAN contributed a paper on the

Minot-Murphy Diet in Treatment of Pernicious Anæmia.

They described five cases which had been treated with liver for periods ranging from seven to twelve months. In all of them clinical improvement had started within a few days of beginning the treatment, and there had been marked and rapid increase in the number of red blood corpuscles and the hæmoglobin; in four of the cases the leucocytes had tended to increase in number and the colour-index to diminish, whilst anisocytosis and poikilocytosis had disappeared. Complete remissions with practically normal blood-counts had been induced in all the patients, and so far they had persisted. Glossitis had cleared up and the patients had been able to resume their normal lives. Dr. Moore and Dr. Dungan concluded that the Minot-Murphy diet treatment of pernicious anæmia was astonishingly successful in inducing a remission. Dr. Dungan explained that the colour-indices had been calculated on the classical basis, but by reason of the marked sex- and age-variations in both red cell-count and hæmoglobin-content, he doubted whether this was altogether rational. The success of the diet might possibly be evidence against the theory that pernicious anæmia was due to a chronic intoxication, since it seemed unlikely that a marrow undergoing a continuous slow poisoning would recover its function so dramatically after the administration of a comparatively simple chemical substance. On the other hand, the anæmia might be due to damage caused by a previous infection, such as was believed to occur in the pancreas in diabetes. In some of the cases of Minot and Murphy, the actual volume of the red corpuscles had increased more than fourfold under treatment, and if studies in blood volume had been possible in the present series they would presumably have shown a similar result.

Dr. L. ABRAHAMSON said that he had treated three cases by the method. In the first case of pernicious anæmia the patient had been so ill on admission to hospital that he could not tolerate liver or any solid food, and the treatment had not had a fair trial. In the second, a typical case of pernicious anæmia, the patient was admitted to hospital on Sept. 28th, 1927, with a red cell-count of 1,310,000 per c.mm., and a hæmoglobin percentage of 35. After 19 days of liver feeding the red cell-count had increased to close on 4,000,000 per c.mm., and the hæmoglobin to 60 per cent. Improvement in the general symptoms had been dramatic. The increase in reticulocytes described by Minot and Murphy had not been noted in this case. The third case treated was one of severe secondary anæmia and had shown no improvement on liver treatment. Dr. Abrahamson thought that it would be necessary to wait for some years before the results of this treatment could be evaluated; but it was encouraging to read that cases had been followed for over three years without relapse. The liver treatment was an important departure in therapeutics generally, and in pernicious anæmia it was not only a promising method of treatment, but was also likely to clear up the ætiology. He thought that the success of liver feeding argued against the theory of intestinal toxæmia.

Dr. V. M. SYNGE had so far only treated one case, the patient being a woman of 25.

For three months before admission to hospital she had typical symptoms of pernicious anæmia and a typical blood picture. When she was admitted Dr. Synge had not heard of the Minot-Murphy method, and tried ordinary treatment. She was unable to take arsenic by the mouth, but had arsenic injections. Liver treatment was started at the end of last May. After a week there was very marked improvement, and she left hospital healthy and fit, though a little anæmic, at the end of June. She was now in excellent health and was taking liver and hydrochloric acid daily.

In the diagnosis of doubtful cases of pernicious anæmia Dr. Synge thought that the most reliable test was the estimation of bilirubin in the blood. Since he had started using this test he had never found a case of pernicious anæmia in which it had not held good.

Prof. S. S. PRINGLE said that perhaps the new knowledge of the value of liver feeding in pernicious anæmia would later throw light on blood-formation by the spleen.

Prof. J. W. BIGGER asked whether liver treatment had been tried in such forms of secondary anæmia as bothriocephalus anæmia.

Prof. J. M. O'CONNOR said that he could hardly regard liver treatment as being successful owing to its action on the bone-marrow. If the results were due to bone-marrow stimulation a distinct change might be expected in the white cell-count.

Dr. A. R. PARSONS pointed out that the real difficulty was to treat pernicious anæmia in the relapse. No one could yet say that the results of liver treatment were going to be permanent, but it was encouraging to note that Minot had got nearly as good results in third attacks as he had in first attacks.

Dr. R. A. Q. O'MEARA said that the microscopic picture of the bone-marrow in pernicious anæmia was one not of destruction but of very active regeneration. In favour of the toxic origin of the disease were the peculiar cases in which pernicious anæmia started with achlorhydria which was followed by subacute combined degeneration and later by symptoms of anæmia. He agreed with Dr. Synge that the van den Bergh reaction gave valuable information as to the nature of the anæmia, and he thought it would be interesting to see the effect of liver treatment on the bilirubin content of the blood.

Dr. H. QUINLAN, referring to a patient of his who had at first been unable to take liver, said that in cases like this a liver extract or powder would be a great improvement. He had treated two other cases; one of them had greatly improved, but the other had not.

Dr. E. T. FREEMAN asked if any alteration had been noticed in the blood pressure of patients who had taken large quantities of liver.

Dr. MOORE, in reply, thought that care should be taken for the present about mentioning the word gland until it was found out whether the therapeutic substance was a hormone or not. The literature stated that liver was much more effective if given raw than when cooked. In some cases he had found that the blood pressure had risen, but only slightly, and not more than would be accounted for by the patient's general improvement.

Reviews and Notices of Books.

MEDICO-LEGAL INJURIES.

By ARCHIBALD MCKENDRICK, F.R.C.S. Edin., Medical Referee under Workmen's Compensation Act; Consulting Radiologist to Edinburgh Royal Infirmary. London: Edward Arnold and Co. 1927. Pp. 341. 18s.

THE general scope of this book is indicated in another column. It deals with injuries "arising out of, and in the course of, employment" as defined by the Workmen's Compensation Act. No attempt is made to describe criminal cases; no reference is made to industrial diseases which are by definition the results of "accidents" within the meaning of the Act, and no mention is made of injuries to the special senses.

A long and helpful section is devoted to injuries of the back, where the difficulties of making an accurate diagnosis and prognosis are well known. After an elementary but sufficient description of the anatomy of the spine, we have a clear account of the curves, movements, and supports of the column; we have a description of two types of violence to which the back may be subjected: (1) intrinsic (from muscular action), and (2) extrinsic (from violence applied from without). A heavy lift "may cause strain of the muscles, but it cannot cause damage to the spine itself." If, however, the strain under which the muscles are acting is suddenly released, as when the handle breaks from a heavy weight, then either the opposing muscles may be injured or so much "whip" is imparted to the spine that this may snap. Only two types of extrinsic violence are described at length —falls on the buttocks and overbending of the spine. Fractures of the bodies of the vertebræ are a much more frequent result of these accidents than is generally supposed. Three cases are quoted in which falls on the buttocks have caused fractures of the first or second vertebræ. Each of these patients was able to continue his work at the time, and the fracture was only discovered by X ray examination at some later date. Of overbending of the spine generally it is said that injury to ligaments results amounting "to sprain of spinal joints." Sometimes there is a fracture or fracture dislocation of the vertebræ, but we are told that this "cannot possibly cause damage to the muscles, because the muscles are not actually overstretched even when the spine is bent beyond its normal limits." As a result of overbending the spine backwards, the anterior common ligament may be torn, and an effusion take place in front of the bodies of the vertebræ in the neighbourhood of the injury. Soon after the accident the bone becomes spongy and porous, and casts a faint shadow only on an X ray film, and it may be exceedingly difficult in such cases to make a differential diagnosis between uncomplicated strain and tuberculosis of the spine. The large majority of these cases clear up in time, but two cases are quoted in which tuberculous disease eventually developed at the site of injury. In writing a report on injuries of the back the greatest care must be taken in obtaining an accurate and detailed account of the accident. Often a patient will say that he "ricked his back," when on further questioning the actual injury may prove to have been a compression, strain, or a blow which he thought had "ricked his back." The examination should be conducted in a systematic manner, and the same sequence should be adopted in each case. Very good rules are given for the examination of muscles in cases of back injury. Boarded muscles may exhibit a peculiar sign termed "give" according to the condition which is causing the boarding; the patient is asked to bend forwards, and the examiner places his hand on the boarded muscles and keeps it there for a full minute, and if there is no "give," something radically wrong with the spine may be found—e.g., tuberculosis. If there is a more or less gradual "give" followed by a shorter "give" the muscles themselves are at fault. But if there is no "give" at first and then a somewhat sudden and short "give," and then a longer "give," so on, until the back is fully bent, it may be taken as strong presumptive evidence of malingering. Full instructions are given as to the simplest methods of measuring the movements of the spine, and diagrams are appended to show how little of the movement of bending forward is accomplished by the spine, and how much is due to flexion of the pelvis at the hips. The pitfalls in interpreting X ray films of the spine are explained, and it is noted that the fifth lumbar vertebra is seldom injured, yet owing to the impossibility of obtaining a clear X ray picture of it without the overlapping shadow of the fourth lumbar vertebra or the sacrum, deformities and injuries are constantly being associated with it. "Railway spine" is dealt with in a short paragraph on page 147. Although frequent reference is made to this condition in the text the general reader would find it more convenient if all the particulars were collected under one heading.

In discussing injuries of the head the writer deals for the first time with injuries that have not to be considered with reference to the Workmen's Compensation Acts, for example, bullet wounds. While considering fractures of the skull he advances a new theory on fractures from contrecoup:

> "A person may fall and strike the back of the head on the ground and sustain a fracture, not at the back of the head, but in the front of the skull. Such fractures have hitherto been described as fractures from *contre coup*. A much more likely explanation is that during the fall the chin has come forcibly down against the chest and the violence has been transmitted to the front of the skull through the jaws."

On the difficult subject of pain Mr. McKendrick warns us that the amount of pain which an injured person suffers cannot be accurately gauged—only the patient "knows what he feels." But where there is genuine severe pain or tenderness there are signs which the examiner can appreciate and use as a very rough guide in estimating their degree. Five such signs are described: (1) Haggard appearance; (2) rise in blood pressure when the painful area is pressed; (3) dilatation of the pupil when the painful area is pressed; (4) increase in pulse-rate when the painful area is pressed; (5) boarding of the muscles over the tender area. Sweating and flushing are not included in the list.

Rupture of internal organs and blood-vessels always affords a subject for spirited medico-legal argument. The pathology of these conditions is clearly defined, and the way in which aggravation of an old-standing disease is brought about is explained. Yet in the two cases quoted it is very difficult to understand how the court came to its decision. No mention is made of gastric ulcer caused by trauma, and yet it is a definitely recognisable condition and has, on at least one occasion, been established in the English court. The chapter on hernia is clear and on the whole unbiased, but it starts and finishes with statements which will not pass unchallenged. On page 248 we are told that "the most up-to-date medical opinion is in effect that there is no such thing as traumatic hernia." And on page 254 "Hernia may be aggravated by an accident such as a strain. If this happens the aggravation passes off with the reduction of the hernia." This claim will be absolutely rejected by many. Even allowing the presence of a congenital sac, there can be no reasonable doubt that when a hernia is forced through for the first time, there is definite stretching or tearing of muscle which does not completely recover with the reduction of the hernia, so that a very much smaller strain will in future determine the descent of the hernia.

A book of this description should find its greatest use for reference in particular cases. We expect that it will be constantly produced in court, and for this purpose it is well designed. It is light and of a size that will readily go into a brief bag; moreover, the printing is distinct and the diagrams and illustrations are good. Appendix 3 is a glossary of medical terms

and this, though necessarily incomplete, is extremely useful, the descriptions being short and clear. The writer has had much experience with the Scottish miner and some of the technical terms are not readily understood from the context; a "hutch" is apparently the northern equivalent of a "tram" or "dram." Occasionally Scottish law terms are used—e.g., the "pursuer" is in the English courts known as the "applicant."

This book will be found of equal value to the practitioner, who is occasionally called upon to examine medico-legal cases, as to the responsible laymen for whom it is written.

INTRACRANIAL TUMOURS.

Some Errors in their Diagnosis. By Sir JAMES PURVES-STEWART, K.C.M.G., M.D., F.R.C.P., Senior Physician to Westminster Hospital. London: Humphrey Milford, Oxford University Press. 1927. Pp. 206. 12*s.* 6*d.*

THIS useful and readable little volume is elaborated from the presidential address given by its author to the Neurological Section of the Royal Society of Medicine. It is based on a painstaking survey and analysis of some 253 personal cases of intracranial tumour—an experience amply sufficient to prove fruitful for both accuracy of diagnosis and avoidance of error. A tabulation of the local types encountered in 121 anatomically verified cases reveals tumours of practically every site imaginable, the greater number being cortical (52) and cerebellar (29). Clinical syndromes for the different types are provided by a selection of appropriately illustrative cases. Some pitfalls in diagnosis are exemplified, and some errors candidly commented on. A large number of photographic and other illustrations serve to elucidate the text. With so much material, and where the author has obviously so much more to say, it is perhaps regrettable that statistical survey has not been carried further—e.g., in respect of survival rate, duration, histological type, &c. The clinical histories are full and satisfying, yet they entail careful reading if their significance is to be grasped, and summaries representative of each local type would have been helpful. As it is, the book will be appreciated most by those with comparable experience.

Die chirurgische Behandlung der Gehirntumoren; eine klinische Studie. By Dr. HERBERT OLIVECRONA, Oberarzt of the Surgical Clinic, Seraphimerkrankenhaus, Stockholm. Berlin: Julius Springer. 1927. Pp. 344. Rm.27.

Dr. Olivecrona's fine monograph is based on the complete investigation of some 105 cases of intracranial growth, of which 75 were verified by operation or autopsy. A pathological classification shows them to have been gliomas, 11 meningiomas, and 12 pituitarinomas; rarities (cholesteatoma, angioma, tuberculoma, metastatic tumours) occurred a few times. This classification is followed also from the clinical side; that is to say, a chapter is devoted to the clinical study of glioma, the next to a similar study of the clinical syndromes of meningioma, and so forth. For such an arrangement we have nothing but praise; it is precisely the line of investigation, hitherto largely neglected, that is calculated to prove fertile for both clinician and neuropathologist. To add some indications beforehand of the histological type likely to be met with in a given case for exploration is a consummation often sought in vain; any clues facilitating the search are welcome. For each of his pathological groups the author gives a summary; as an example, he has had 28 cases of supratentorial glioma; clinical diagnosis before operation, operation-mortality, cause of death, relation of this last point to nature of tumour, prognosis, operability, &c., are all examined with conspicuous candour and lucidity. These are precisely the matters on which the conscientious neurologist is ever seeking further light to be thrown, yet few indeed of the writers on cerebral tumours deal with them adequately. Attention is also directed to present-day improvements in technical method (X ray, ventriculography, exploratory puncture) and, of course, a large section is concerned with surgical procedure. Of 85 cases operated on death followed in 34. No less than 15 causes of death are tabulated and scrutinised, post-operative rise of pressure through general cerebral œdema being responsible for 13 of the 34 fatalities. Many other highly instructive summaries are given; as a single example, the frequency of papilloedema, not in varieties of localisation but in the different pathological types of tumour, is examined.

It is gratifying to scan the pages of a monograph so original and so practical in its bearings. It will repay fully a minute perusal.

PERIODIC HEALTH EXAMINATION.

How to Make Periodic Health Examinations. By EUGENE LYMAN FISK, M.D., Medical Director, Life Extension Institute; and J. RAMSER CRAWFORD, M.D., Assistant Director, Life Extension Institute. New York: Macmillan Company. 1927. Pp. 393.

IN 1861 Dr. Horace Dobell urged the institution of a system of periodical examination, and at the present day the principle has many sponsors. For those who retain any doubt as to its practicability the manual before us by Dr. Fisk and Dr. Crawford, both of wide experience in this field, should prove useful. It is the outcome of a smaller book prepared with the assistance of a special committee of the medical staff of the New York Life Extension Institute, and each of the sections dealing with regional examinations now has an introduction supplied by an expert. The preliminaries concerned with history-taking and recording are first described along with a discussion of equipment and routine procedure. Next follow 14 sections on different regions in detail; here the description of the taking of blood pressure (p. 85) and of the nervous system are particularly good. The section on laboratory methods and standards reflects the wholesome attitude to laboratory tests adopted by Dr. Mazyck P. Ravenel. The author of the anonymous final section on "counselling" is to be congratulated on the competent manner in which he handles a difficult subject. The numerous charts given in the appendix are not as terrifying as they appear at first sight. There are some illuminating statistics and a good bibliography and index.

DISEASES OF THE SKIN.

Second edition. By ROBERT W. MACKENNA, M.D., Lecturer in Dermatology, University of Liverpool; Hon. Dermatologist, Royal Infirmary, Liverpool. London: Baillière, Tindall and Cox. 1927. Pp. 452. With 179 illustrations, including 36 in colour. 25*s.*

THE immense subject of eczema is a test of the merits of a text-book on the skin, for it is one which makes the most searching demands on the writer's experience, logic, and literary knowledge. Dr. Mackenna has managed to compress all that it is necessary for the practitioner to remember into 27 pages, which include 10 admirable illustrations of the most typical examples of this protean disease. There is no attempt to dogmatise, and all the theories of causation are considered in very simple terms. It is, however, clear that the author favours an underlying dyscrasia of the skin itself as the most potent factor in production, and in so doing he identifies himself with the most progressive schools of the day. The forms of treatment advised for eczema reveal profound experience of all the difficulties that may arise, and that can largely be prevented by a judicious selection of specific applications in the various stages. The formulæ are simple and not too numerous, and in addition to an outline of therapeutic methods for the disease as a whole there are separate paragraphs for special manifestations in the various parts of the body,

such as the anus, vulva, and breast. The practitioner will probably find this the most useful chapter in the book. An excellent feature of the work as a whole is the free use of tables showing important points in the differential diagnosis of such diseases as dermatitis herpetiformis and pemphigus, erythema nodosum and tuberculous and syphilitic gummata of the legs, psoriasis, and psoriasiform syphilides. These will greatly assist the student. There is an index both of subjects and authors, and the literary references are well chosen and not too numerous. The book has arrived at its second edition in four years, and certainly deserves to be placed among the first three or four English publications of its kind.

THE LIFE OF THE FLY.

The Insect's Homer. With which are interspersed Some Chapters of Autobiography. By J. H. FABRE. Translated by A. T. DE MATTOS. London: Hodder and Stoughton. Pp. 317. 2*s.* 6*d.*

THE title seems to be confused, but the volume is a well-printed and splendidly cheap reprint of Fabre's few essays about diptera, made up with a chapter on caddis-worms and several, which are specially interesting, on his mathematical studies, his visit to Paris to receive the Legion of Honour, and other personal matters. It would be much improved by some simple illustrations, but that is probably impossible at the price.

MEDICINE IN NEW ZEALAND.

Proceedings of the University of Otago Medical School. No. 4, 1927. Edited by D. W. CARMALT JONES, M.D., F.R.C.P. Dunedin: Budget, Ltd.

THIS volume contains 13 papers by members of the Otago Medical School, reprinted from various Australasian journals. The first four comprise Parts III. to VII. of a treatise in preparation by Dr. John Malcolm and others, of the New Zealand Institute, on the food values of New Zealand fish, and deal respectively with the shell-fish pana (*Haliotis iris*), the relation between the fats of the red cod and its food, the vitamin-A content of mutton-bird oil and certain fish oils, and the vitamin content of the tarahiki. The results have a commercial as well as a scientific significance, for they show that the pana is a valuable food of high protein content, that mutton-bird oil is one of the richest natural sources of vitamin A, and that tarahiki, a breakfast ration of which would probably supply an adult's requirements of A, would be in many ways a suitable fish for canning. A fact that constantly appears in these researches is that fish seem to store the fat of their food almost unchanged, and an analysis of it can often be relied on for accurate information about their feeding habits. The last three papers in the collection are devoted to the study of hydatid disease, which is a notifiable disease in New Zealand, and which, besides claiming about a hundred victims every year, causes great loss to the meat-exporting industry. Mr. Roland Fulton, in a survey of 90 cases, gives a death-rate of 23·3 per cent. and a recurrence-rate of 16·6 per cent. The high mortality is due to suppuration, which occurred in 19 cases as a result of late diagnosis, and the danger of leaving cysts behind after operation is much greater in suppurating cases. The problem, therefore, is chiefly one of diagnosis, and Messrs. C. C. Anderson and C. E. Hercus contribute to its solution from the X ray and the laboratory sides respectively. Mr. Anderson also contributes a paper on the X ray examination of the gall-bladder. The remainder of the collection consists of two studies by the editor on the relations of temperature and pulse-rate and on chronic arthritis; papers on pneumococcal peritonitis and ureteral strictures by Mr. J. A. Jenkins, and an account by Dr. Ruth Barclay of an unusual fracture of the elbow-joint. The radiological articles are illustrated by several good skiagrams.

JOURNALS.

JOURNAL OF PATHOLOGY AND BACTERIOLOGY. Vol. XXX., No. 4. October, 1927.—Healed Tuberculoma of Cerebellum, by M. J. Stewart (Leeds). An old calcified tuberculous mass in the right lobe of the cerebellum, visible by X rays and causing no symptoms.—Large Calcified Tuberculoma of Cerebrum by R. P. Smith (Newcastle). A similar case but with an old history of cerebral symptoms.—Diphtheria Toxoid-Antitoxin Floccules, by A. T. Glenny and C. G. Pope (Beckenham). The Ramon precipitate from mixtures of toxoid and antitoxin is as good an antigen for active immunisation as that from toxin and antitoxin and has the great advantage of being free from any danger from excess of toxin.—A Comparison of the English, German, and Japanese Systems of Classification of Dysentery Bacilli, by D. Kalic (London). A useful synonymy is arrived at by agglutination and absorption tests.—Tumours of the Rabbit, by C. J. Polson (Manchester). Fourteen tumours are described, mostly carcinoma of uterus.—Effects of Coal Dust on the Silicotic Lung, by S. L. Cummins (Cardiff). Coal dust is usually harmless to the lungs, and, indeed, may actually stimulate the phagocytic mechanism to remove other particles more completely. But if the lymphatics have been blocked by previous silicosis, any considerable further exposure to coal dust may be very detrimental.—The Activity of the Thyroid Gland in Relation to the Staining Reactions of the Colloid, by Evelyn E. Hewer (London). An attempt to correlate the activity of the gland with the empirical staining reactions of the colloid.—Agglutination of Typhoid and Dysentery Organisms by the Sera of Mental Hospital Patients, by F. A. Pickworth (Birmingham). About a quarter of the patients admitted to asylums show some agglutination with enteric bacilli; the author does not adduce any evidence that normal people do not do the same. After repeated dose of T.A.B. vaccine different patients show very different agglutination responses to the different bacilli.—Hypernephroma of Atypical Structure, by J. Gray (Aberdeen). An example which, by its papilliferous structure in parts, reveals the real nature of these tumours—i.e., renal carcinoma.—Thrombo-angeitis Obliterans, by R. O. Girdwood (Aberdeen). A careful description of the anatomy and histology in a non-Jewish case.—The Production of Experimental Atheroma with Cholesterol, by R. W. Scarff (London). Atheroma can easily be produced in rabbits by adding cholesterol to their normal diet. Some months after feeding is discontinued the lesions bear a strong resemblance to those of human atheroma.—The Exotoxins of the Hæmolytic Streptococci, by J. Smith (Aberdeen). A long series of careful experiments leads to the conclusion that all hæmolytic streptococci (mastoiditis, osteomyelitis, erysipelas, puerperal septicæmia, scarlet fever, &c.) produce identical exotoxins; all are neutralised by scarlatinal horse antitoxin or the serum from a convalescent case of scarlet fever.—The Stability and Solubility of Diphtheria Toxin in Acid and Alkali, by Una Wallace (Beckenham). Alkali is more destructive than acid.—Complement Fixation in Mixtures of Toxin and Antitoxin, by H. R. Dean (Cambridge). With some difficulty it is demonstrated that the flocculation reaction between diphtheria toxin and antitoxin is accompanied by fixation of complement.—The Monocytes of the Rabbit in *B. monocytogenes* Infection, by L. J. Witts and R. A. Webb (Cambridge). Monocytes may be recognised by their reactions to supravital staining; they come from the spleen and bone-marrow and cannot be identified with clasmatocytes.—Regeneration of the Pancreas, by G. R. Cameron (Melbourne). Partial removal of the pancreas in guinea-pigs is followed by regeneration of acinar and islet tissue which is inhibited by giving insulin or pituitrin. Pituitrin causes hypertrophy with a relative increase in islets.—Note on Preparing Mucicarmine, by H. W. Southgate (Croydon).—Obituary notice with portrait of C. Da Fano.—Book reviews. Indexes and title page.

THE LANCET.

LONDON, SATURDAY, NOVEMBER 12, 1927.

MEDICINE AND THE CHURCH.

SIR FARQUHAR BUZZARD, in his recent address at ork published in this issue, describes the varying elations that have existed between medicine and the hurch through the centuries; the harmony of these elations has always been a direct concern of mankind, hich turns either to the physician or the priest in time f trouble. Progress in medicine has been synchronous ith a gradual separation from the Church, and now ie public places a reliance upon medicine which, s the speaker might have said without departing om his theme, sometimes leads the cynic to declare iat man has found a new object for the faith once evoted only to the Church. We are viewed as the ossessors of a gift of healing which neither medicine or the Church may rightly claim, but the psychologist, ren if he be one who subjects religion itself to psychogical analysis, recognises that many men need ipport, something upon which to lean, and this need sts upon no rational basis but demands satisfaction the face of all reason. "Faith," says Sir FARQUHAR UZZARD, "even if it is defined as the ability to believe iat which there is no reason to think is true, is one the commonest attributes of the human mind and, gether with the almost universal fear of pain and ckness, forms an ideal and abundant soil for the work the spiritual healer." Are we justified in leaving is soil untilled? Should we be permitted to do so ren if we desired? The public shows no sign of easuring our powers in the light of reason; its emands for enlightenment are not for knowledge it authoritative declaration upon which they may se a ritual of diet or drugs. When authority ffers within itself—as it must when called upon for nswers to questions that are unanswerable—the mand is for still higher authority that will provide sure support. So great are the powers attributed the magic of medical science that the public is grieved by the many diseases that remain unchecked; rely if the magic were only properly used the secrets their cause and cure would be revealed. The cynic as right; man must have an object for the faith at is within him and, whether we like it or not, edicine now serves him as the object. Sir FARQUHAR UZZARD'S exposition of the limits of our powers is ndid and welcome, and his disclaimer of the gifts healing follows logically upon his views; none the ss, we shall be credited with something unknown id unintelligible—something not due merely to the ility to solve scientific problems.

But, whilst he demands from medicine the renuncian of the claim to cure, Sir FARQUHAR BUZZARD asks less from the Church. Weight of religious authority against the claim to cure "organic" disease, and looks forward to the time when the Church will ve the courage to say that she makes no claim to iritual healing. He is to be commended for this rectness; he knew that there would be criticism, id only by the expression of varying views can we tain clearness. He takes the pathology of encephaitis lethargica as a type of disorder illustrating the lationship of mind and matter without indicating e narrow limits within which such relationship is nown to exist. The changes of character after encephalitis result from gross lesions of nerve structure followed by the liberation of instinctive urges which are normally under the control of higher centres now destroyed by disease. But do we know that disorders of structure always precede and determine disorders of emotion and behaviour? Are the racking doubts and fears of the psychasthenic, his stammerings and indecisions at times of stress, to be attributed to structural changes any more than are the criminal tendencies of other people, their gastronomic likes and dislikes, or their fierce political opinions. When Sir FARQUHAR BUZZARD writes that "the use of the adjective 'functional' indicates that the disease or disorder described is attributed to a disturbance in the function of an organ without a physical change of structure such as we are able to detect," he allows for the belief that some physical change exists which some day we may hope to detect. Discussion here would soon lead us away from physiology to metaphysics, and it may be asked fairly whether, in the present state of our knowledge, anything more than chance has decreed that the troubles of the psychasthenic, or even the hysteric, should belong to medicine rather than to the Church, or whether our use of the phrase "functional nervous disorder" serves any other purpose than to signify our belief that they do so belong?

That in undertaking spiritual healing the Church might see herself in competition, not with medicine, but with quacks and charlatans, is an admission that there are sufferers who, failing to get relief from the methods of orthodox medicine, find it either at the hands of charlatans or in the ministrations of the Church. We know, indeed, that this is sometimes true of psychasthenics; and so long as that is so we must expect them to seek help in those quarters. The reasonable hope is that as our knowledge progresses steadily the number and variety of cases unrelieved by scientific medicine will decrease steadily. The dangers of unqualified meddling in organic disease are beyond dispute. If in the undefined territory of functional nervous disorder, with its associated mental conflict and worry and maladjustments to the demands of life, the line of demarcation between the functions of medicine and those of the Church may not be capable of exact determination at the present, this is not to say that the boundary is in any sense final.

LARYNGECTOMY.

THE story of laryngectomy is the familiar one of a difficult operation designed to meet a desperate need. At first performed in unsuitable cases and attended by a high mortality, in the hands of a few under certain conditions it has become comparatively safe. Gradually the scope and limitations of the operation have been laid down, the contra-indications defined, the details of technique, preparation, and after-treatment elaborated, with the result that the mortality has been lessened and the percentage of cures increased. This is the position which Mr. LIONEL COLLEDGE reviewed in his Semon lecture on Nov. 3rd. He pointed out how laryngectomy had been applied to cases of extrinsic cancer of the larynx (really pharyngeal cancer) in which the growth had originated on the aryepiglottic folds or epiglottis, to post-cricoid carcinoma, and to growths arising in the fossa pyriformis. In the first class of these cases, lateral pharyngotomy, as planned by Mr. WILFRED TROTTER, is the more suitable operation; in the second class it is not always necessary to excise the larynx, for in suitable cases a pharyngotomy, combined with the

use of plastic skin-flaps, will allow the resection of the lower part of the pharynx and upper end of the œsophagus. For the third class, that of tumours of the pyriform fossa, the only prospect of success is given by the removal of the larynx with a portion of the pharynx; GLUCK was the first to demonstrate the possibility of carrying through these very extensive operations to a successful conclusion. Mr. COLLEDGE complained that statistics and case reports commonly make no sufficient distinction between cases of excision limited to the larynx and these cases in which it has been combined with partial excision of the pharynx; at the present time, he said, the operation should be judged by its success in dealing with cases of intrinsic cancer too advanced for such a conservative measure as laryngo-fissure—where, for instance, the disease has extended widely in the subglottic region, or has crossed the anterior commissure and invaded both vocal cords, where one or both cords are fixed and there is extension to the arytenoid region, or where the cancer has recurred after laryngo-fissure.

To estimate the relative success of laryngo-fissure and laryngectomy may be difficult or impossible, for the selection of cases varies greatly with different surgeons and in different countries. Thus TAPIA, of Madrid, has reported 107 cases with five deaths due to the operation, and it is possible that many of his patients would have been considered suitable cases for operation by laryngo-fissure in this country. In New York J. E. MACKENTY has performed 102 total laryngectomies as against only 22 thyrotomies; he writes "on some amazing statistics of cures by thyrotomy, and even by excision under suspension. Is it possible that the general profession in the regions from which these statistics emanate is more enlightened and more alert in the detection of laryngeal cancer than we are in New York and its environs?" Mr. COLLEDGE answered this question in the affirmative; he considered it evident that a large proportion of Dr. MACKENTY'S patients were not seen by him until they had reached an advanced stage, since he had only obtained 66 per cent. of cures after laryngectomy for intrinic cancer, against some 80 per cent. of cures after thyro-fissure reported in British practice. But here, too, there is room for improvement in the early recognition of cancer of the larynx. Some patients may not seek prompt advice for the vocal impairment which is usually the only early symptom, but the laryngologist still sees far too many cases which have been treated for hoarseness without adequate examination until the cancer has spread too far for removal by thyrotomy. The lesser operation of laryngo-fissure, of course, gives a far better functional result than laryngectomy—a further reason for urging that patients be sent for treatment at an early stage. In illustration of this point, Sir STCLAIR THOMSON showed at the meeting of the Laryngological Section of the Royal Society of Medicine (reported on another page) four medical men on whom he had performed the lesser operation at periods varying from 2¼ to 5½ years previously. All had useful voices and were engaged in practice.

The Semon lecturer concluded by discussing fully the ultimate results of laryngectomy from the point of view of function. He found that most patients develop a useful pharyngeal whisper, occasionally quite a loud voice, that they are usually cheerful and active, and that there is no direct evidence of special liability to pulmonary disorders. As the result of the abolition of nasal respiration, they are indeed remarkably free from coryza. The permanent tracheotomy is part of the price paid for the cure of a disease which, unchecked, would eventually necessitate this operation in almost every case. It may be claimed, therefore, that the patient's ultimate condition is no worse than that of one suffering from any form of permanent or complete laryngeal stenosis.

DIET AND THE TEETH.

THE introduction to the last report of the Medical Research Council says that there is evidence suggesting that the structure of the teeth is a sensitive index of the national health. This statement doubtless refers to Mrs. MELLANBY'S work on the relation of diet to calcification, for the direction of her research during the last ten years has been to show that normal dental development depends on a sufficiency of the fat-soluble vitamins A and D in the diet. Her earlier results showed conclusively that in puppies the teeth can be modified according to the diet employed, and in 1923 she recorded an attempt to apply these findings to human pathology. Examination of a number of deciduous teeth showed that a large proportion were defective in structure and might be regarded as hypoplastic, and it was found that these hypoplastic teeth were abnormally subject to caries. At that time the number studied was small, but a more recent paper [1] describes observations of over 1000 deciduous teeth. They were first examined with the naked eye to detect any roughness or pitting which might indicate defective structure, and were accordingly graded as normal, slightly hypoplastic, hypoplastic, or severely hypoplastic. Ground sections were then made and the conditions of the enamel and dentine were noted, the latter being mainly relied on to provide a general index of the degree of calcification. The chief indication of defective structure was considered to be the presence of interglobular spaces. Dentine is built up of calcospherites which fuse together to form a matrix penetrated by the dentinal tubes, and the presence of interglobular spaces shows that these calcospherites have coalesced imperfectly, which makes the dentine softer, less homogeneous, and presumably more readily attacked by caries.

Mrs. MELLANBY'S scrupulous examination of the deciduous teeth showed that 14 per cent. were normal, 21 per cent. were slightly hypoplastic, and 64 per cent. were severely hypoplastic. The deciduous incisors were better calcified than the deciduous molars, 49 per cent. of the incisors being normal as compared with 1 per cent. of the second molars. The explanation of this disparity is said to be that the crowns of the incisors are mostly calcified in utero, when the fœtus is really carnivorous and is shielded from any deficiency in the maternal diet. The greater part of the deciduous molars is formed after birth, especially during the first few months of life when the infant is highly susceptible to dietetic deficiencies. It was interesting to find that only 9 per cent. of the teeth obtained from school clinics were normal as compared with 28 per cent. of those which came from the private practice of dentists. Nearly 300 permanent teeth, chiefly first permanent molars, were examined in addition, and none of them could be classed as normal. But as Mrs. MELLANBY fairly points out, they had all been extracted for some reason or another, and therefore were not a normal sample of the condition of the permanent teeth.

Three questions arise from this laborious and valuable investigation. First, what is the normal structure of deciduous teeth? An examination of Mrs. MELLANBY'S microphotographs leaves no doubt that

[1] Brit. Dent. Jour., July, 1927.

the cases of severe hypoplasia the structure is fective to an extent which diminishes the density the teeth; but it is by no means easy to be sure hat is the significance of interglobular spaces as an dex of faulty calcification. There are few sections teeth which do not reveal some trace of these aces, and it is arguable that without serial sections is impossible to say that they are absent in any rticular tooth. Interglobular spaces are very merous in the teeth of whales, and also of horses; t in these animals no one would regard them as a fect of structure, and still less as evidence of etary indiscretion. Mrs. MELLANBY'S thesis pears to be that what may be termed lapses from e ideal architecture of the tooth—a degradation of ucture—are associated with deficiency of fat-luble vitamins. This is a reasonable hypothesis, t before it is accepted, it would be convenient to ow the average structure of the deciduous teeth the people of this country in the days when diet s more natural and the amount of caries—for one ason or another—was less. It would be useful also have similar data concerning the teeth of other es both past and present. The second question is, w far is defective dental structure due to deficiencies diet? Is it certain that a balanced diet will ensure e growth of well-calcified teeth? Comparative dy of the microscopical structure of a large number specimens should do much to decide these problems, ough it is difficult to apply the results of animal periments to the human organism. The last estion is perhaps the most important. Does s. MELLANBY'S work provide a sufficient explana-n of the increased prevalence of dental caries, and it justifiable to hope that more rational dietetics ll produce teeth which will offer a greater resistance decay? At the present time our answers have to guarded. There is little doubt that deficient ucture is of vast importance in predisposing to ies, but it would be hazardous to assume that re has been a progressive degradation of the ucture of the teeth or that such a degradation is chief factor in the present high incidence of dental ease. Even if we could be sure that the architecture the teeth has deteriorated we should still have to member that there has also been an alteration in dietetic habits of the nation, involving a steady rease in the consumption of fermentable carbo-drates and a decrease of the fibrous elements ich scour the teeth and help to keep them clean.

ROYAL MEDICAL BENEVOLENT FUND GUILD: AN APPEAL.

ONLY once before has this Fund made a public peal—namely, in 1923—when the movement was ugurated for founding in memoriam scholarships. w, in order to raise £3000 in aid of the educational rk of the Guild, Lady Fripp is organising a ball be held at the Mayfair Hotel, on Thursday, c. 1st, at 10 P.M. The Duchess of York, the first yal Patron of the Guild, has intimated her intention being present. Tickets, if sold before Nov. 23rd, l be 2 guineas each, including certain refreshments. is unnecessary to call the attention of our readers the good work done by this Guild, and by the yal Medical Benevolent Fund, of which it is an shoot. The public, however, do not realise that re is any distress among members of the medical fession, and no opportunity should be lost by se in a position to point out the merits of such excellent institution as the Guild. The ball, to organisation of which Miss Tweedy, 100, Harley-eet, W., is acting as honorary secretary, will afford admirable opportunity to help practically where p is sorely needed.

Annotations.

"Ne quid nimis."

VENOUS PRESSURE.

ON all sides there is a tendency to replace the older empirical methods of clinical observation by accurate measurements and estimations, and though these are often too elaborate and expensive for use in general practice, many are of value in the investigation of disease and in judging the effects of treatment. An instance of this tendency is the estimation of venous pressure which has been used to some extent in America as a guide to prognosis and treatment in cases of heart failure. The method, perfected by Hooker,[1] consists in sealing a small glass funnel connected with a rubber bulb and a water manometer over a vein on the dorsum of the hand. The pressure is raised by compressing the bulb and the reading of the manometer is noted at the point at which the vein collapses. A correction is then made according to the position of the hand above or below the level of the right auricle. It is possible to get very accurate results by this method, and it has been established that the average venous pressure in a normal person never rises above 11 cm. of water. In cases of heart failure the pressure is more or less raised, usually to between two and three times the normal figure. A healthy ventricle with good reserve of power contracts with a force proportional to the amount of diastolic filling. A heart with little or no reserve is unable to respond to the load of venous pressure and contracts with decreasing vigour the more this is raised. Consequently the pressure in the veins rises still higher and the clinical picture of congestive heart failure becomes well established. Measurement of the venous pressure, therefore, registers with some precision the degree to which cardiac reserve is impaired. Clark [2] has shown that a fall or rise of venous pressure may give an indication of impending improvement or relapse one or two days before the change is apparent clinically by such methods as a comparison between fluid intake and output. Recently Eyster and Middleton [3] have investigated by this means cases of heart failure in which venesection was indicated on ordinary clinical grounds—that is to say, cases that showed cyanosis, dyspnœa, and congestion of the lungs. They found that in all such cases the venous pressure was raised before venesection and that an initial fall followed the operation. If the fall was maintained during the next 48 hours the prognosis was good, as it showed that the heart had some reserve power once it was relieved of the excessive load of venous pressure. If, on the other hand, the pressure soon rose again to an abnormal level, it showed that there was not strength in the myocardium to cope with even a moderate venous return and the prognosis was correspondingly bad. The apparatus is simple and the technique should prove easy to acquire. The results are far more accurate than those obtained by the better known Gaertner's test, and the method seems worthy of further investigation on this side of the Atlantic.

"REMINISCENCES OF A NAVAL SURGEON."

To Surgeon Rear-Admiral Jeans, C.M.G., all hours afloat are sunny or that, at all events, is the impression gained by reading his attractive account[4] of service in the Navy. So well and so gratefully does he remember his first seagoing ship that it is a picture of her "lovable" captain, the well-known Sir Edward Chichester, that Admiral Jeans presents as frontispiece. This captain was one of the dogged, good-

[1] Hooker, D. R., and Eyster, J. A. E.: Bull. Johns Hopkins Hosp., 1909, xix., 274.
[2] Clark, A. H.: Arch. Int. Med., 1915, xvi., 587.
[3] Eyster, J. A. E., and Middleton, W. S.: Amer. Jour. of Med. Sci., 1927, clxxiv., 486.
[4] London: Sampson Low, Marston and Co. Pp. 310. 18s.

natured West Countrymen of whom so many have adorned the records of the Navy, so unselfishly proud of *Immortalité* that she was to him, and to the ship's company, "our" ship, never "my" ship, as many senior officers phrase it. All the writer's ships were "happy," yet like every seaman he enjoyed going ashore in South Africa to do a bit of soldiering with the 4·7 naval guns. There were compensations too, for "the Army," he says, "always treated us as their guests throughout the war." Admiral Jeans gives an intimate account of Lord Roberts and Lord Kitchener directing the battle of Poplar Grove from the naval gun position. He was also in the Great War where he found Gallipoli, with its squandered lives and gallantry, a veritable nightmare. Midshipmen at Gallipoli did their work well, but were too young to stand the continual strain; sleeping badly on their days off was the first sign of breakdown. The author is brave enough to doubt whether the present scheme for training cadets to be naval officers from the age of 13 years gives the country the best possible class of officer. Admiral Jeans is a skilled story-teller, his books about the Navy for boys are well known, and he has here many a good yarn to spin and some pictures to show. He was fortunate in being taught while at Haslar—by the son of a D.G., A.M.D.—to sail a boat; and when he gave up football at the age of 46 he discovered the joys of "medicine ball." He had little opportunity, on the other hand, for surgery till he had served for 15 years, and another 15 years later he reached the retiring age. Unwillingly enough, for his last sentence runs: "If I had my life to live once again I should retread my steps." This is a book which will make many young practitioners take thought about joining the Naval Medical Service.

FOOT-AND-MOUTH DISEASE AND EPIDEMIOLOGICAL THEORY.

IN the current issue of the *Journal of Hygiene* (1927, xxvi., 465) Prof. Major Greenwood sets out to portray and explain the most important features of an epidemic of foot-and-mouth disease. The difficulties of such a task are acknowledged. Among them are the inaccuracy of records—due to causes which are common to many diseases of man and animals, such as concealment or delay in notification of fresh cases—and the difficulty of tracing human and animal movements, and of ascertaining the sources of food-supply, and of other possible inanimate fomites. A further obstacle to epidemiological inquiry is the poverty of data bearing on the age and susceptibility of the animal population before and during an epidemic.

Prof. Greenwood takes the available data on foot-and-mouth disease in Holland and endeavours to explain them in the light of recent experimental research. Though the artificial epidemics studied by Topley and Greenwood [1] in this country and by Webster in the United States were amongst mice and were due to bacterial diseases—pasteurella and *Bacillus œrtrycke* infections—the fundamental principles may well apply to infective diseases very diverse in their causes and in the hosts affected. The two main assumptions needed for the particular hypothesis of epidemics stated by Topley and Greenwood are: (1) The persistence of sources of infection between epidemics, probably in recovered animals which act as carriers. In these the infective microbe is believed to be in a form which is non-virulent or at any rate will not readily spread the disease. (2) The addition to the community of new susceptible individuals which is held not only to be necessary for the production of an epidemic, but also by the number and the rate of their introduction to modify its course profoundly. The "circulation of non-immunes" is reasonably supposed to act by altering the infective agent in the course of its passage through susceptibles during the early and pre-epidemic periods. All this is very suggestive and stimulating for human and animal epidemiology. The difficulty in applying th results to foot-and-mouth disease is, first, that th epidemiological facts are insufficiently recorded t make sure that they fit the hypothesis; and, secondl that the postulates regarding ever-present foci infection and variation in the supply of susceptible whether by birth or import, lack adequate suppo from the records. That these lacunæ will be fille in the case of future epidemics is much to be hope Carriers of foot-and-mouth disease in cattle a stated to have been found occasionally, but so f with great rarity. On the other hand, much has bee recently learnt about the possibility of introduci infective material from an outside area on dea carcasses, dried fodder, and the like. The discoveri in this direction are recorded in the progress repor of the Foot and Mouth Research Committee.[2] T information about variation in the numbers ar distribution of susceptibles in the cattle populati is very defective, and Prof. Greenwood makes t suggestion that a detailed record of the number, ag and sources of all farm animals in a limited area areas over a long period might be possible a would be valuable.

Concerning practical measures Prof. Greenwood naturally restrained, in view of the incompletene of his data; but he does state the conditions whi appear to him to be suitable for an attempt at stampi out the disease by slaughter. Where, as in Hollar the land frontiers are long and intercourse across t border is free or difficult to control, and where, mo over, the disease is never absent for long and numero foci of infection are probably always present, considers that a policy of slaughter is not hopef Such a policy has its best chance, he points out, a is a reasonable procedure in an isolated count where import of new animals does not occur or s well controlled, and where the disease completely d out and foci of infection are absent between epidemi As to whether Great Britain is an example of the lat case he evidently has some doubts, since the sou of fresh outbreaks is often very obscure and impor tion from abroad usually unproven; but he does n dispute the justification of the present slaugh policy. Efforts to trace the origin of new outbrea may well be more successful in the future than hithe as the result of the recent additions to our knowled of the survival of the virus outside the animal bod The work in this direction is, however, of recent da and its applicability to the infection of farm anim has not been adequately tested.

ELEMENTARY MEDICO-LEGAL PRINCIPLES.

THE examination of patients having medico-le injuries and the lucid presentation of their case a report or in the witness-box is often most difficu calling as it does for a thorough knowledge f anatomy and some acquaintance with varie branches of physics. The lay person cannot expected to arrive at a definite diagnosis or assess the appropriate amount of damage, even apparently simple conditions. Mr. A. McKendric important book, which we review on another pa does not attempt to teach the layman medicine, it does aim at showing him how the medical m conducts the necessary examinations, making clear far as possible the processes of reasoning which cond to diagnosis. One of the most difficult problems t the medical assessor has to face is the determinat of the amount of incapacity occasioned by a s joint. Here the author's advice is to write in report not only the number of degrees throu which a particular joint can be moved, but also w the patient can do—e.g., with a stiff elbow he c or cannot, get his hand in his trouser pocket, a fork to his mouth, or brush his hair. Incapacy expressed in this way becomes intelligible to non-scientific. The main principles involved in treatment of fractures are clearly stated in a spe

[1] THE LANCET, 1926, i., 477, 531, and 645.

[2] See THE LANCET, 1927, i., 499.

apter devoted to the subject, and great emphasis laid on the necessity of early movement in all cases, e following sentence being in italics: "The one ject in all cases of fracture of a long bone should be make an attempt to restore functional utility of e limb as quickly and as fully as possible." This the avowed aim of every surgeon who treats a acture, and Mr. McKendrick is not alone in his inion that it can only be achieved by early move- ent of joints and muscles in the neighbourhood of e fractured bone. Two illustrations given of actured metacarpals are useful; in one a perfect atomical result was obtained, but the hand had en kept in an extension frame for six weeks, and the nctional result, owing to stiff fingers, was very bad; e other is an X ray of an ununited fracture of a cond metacarpal in a man who went back to work e weeks after a severe saw cut, and had no disability. ese and other similar cases prove that a good nctional result is better than a good anatomical ult as shown by X ray examination, but where lure to obtain union has occurred the matter is open serious discussion as to whether the very best ult, albeit a good functional result, was obtained such drastic early movement. Mr. McKendrick kes out a case for the organisation of special ntres for the after-treatment of workmen's injuries. the general hospitals it is nearly always impossible obtain the necessary massage and re-education less the patient is to obtain time off from work, ich he often cannot. Many a workman would able to do light work, sometimes full work, if he re not compelled to attend hospital several days eek during working hours; as a result and against will he remains idle. The yearly cost to the country greater than would be incurred to equip and run ntres where treatment could be obtained after rking hours.

ANCER AND TUBERCULOSIS: THEIR TOLL ON THE COMMUNITY.

N his 1926 report for East Suffolk Dr. B. Wood-White eavours to estimate the comparative economic loss sed by cancer and tuberculosis. He sets out to i a life value for the average individual as he passes ough each of the ordinary statistical periods, ring in mind that early marriage, and consequently ly freedom from the responsibility of starting the t generation, is the rule for the majority. To dren in the first year of life he assigns the arbitrary ue 5, a maximal value of 25 being reached at the -period 25 to 45, after which the figures descend 15, 3, and 0 for the next three periods. The owing table shows how the calculation worked out East Suffolk during the year.

ge-ups.	Fig. of value.	Cancer.		Tuberculosis.	
		No. of deaths.	Damage.	No. of deaths.	Damage.
- 1	5	0	0	2	10
- 2	6	1	6	1	6
- 5	8	1	8	4	32
- 15	11	2	22	8	88
- 25	18	0	0	33	594
- 45	25	24	600	58	1450
- 65	15	108	1620	31	465
- 75	3	121	363	6	18
-100	0	63	0	1	0
—	—	320	2619	144	2663

D Wood-White would like to have split up the 4[5] age-period, but the necessary figures were not available. On the other hand, if he had grouped the fi three periods and given the value of 7 to infants ar "toddlers," the result would have been substan- ti y the same, and the age-periods would have co esponded fairly accurately with the seven ages of Sh kespeare's melancholy philosopher. The life values se n to have been judiciously chosen, despite the fact th in these days of greater longevity the shrunken sh nks of the superannuated carry them through two rounds of golf in the day, and hearty octogenarians would wince at being regarded as sans economic value. In East Suffolk in 1926 the cancer death-rate was unusually high—namely, 1·54—while the tuberculosis rate was unusually low, 0·69; yet, according to the calculation, the damage done by the two diseases was identical. In any previous year the effect of tubercle would have been much more disastrous. East Suffolk is, of course, an agricultural district, and in some industrial areas the deaths from pulmonary tuberculosis occur late in life—e.g., Sheffield, with its grinders. In such places the damage done by tubercle as compared with cancer would be comparatively less.

"OUR LORDS THE SICK."

THERE is a popular impression, to which utterance is sometimes given in Hospital Sunday sermons, that hospitals are a characteristic product of Christianity and of the sympathy and pity which it engendered. How seriously this impression ignores history we are reminded by the learned and fascinating Thomas Vicary lecture on the Early Development of Hospitals, delivered by Dr. George Parker at the Royal College of Surgeons of England last week. Only those who have had laid upon them the duty, or have voluntarily undertaken the pleasure, of discoursing upon a more or less technical topic before a specialist audience can realise the pains that go to the presentation of a bird's-eye view of a great subject such as this. Dr. Parker's lecture was historical rather than technical and forms a valuable conspectus of the history, from long before the Christian era down to our own Middle Ages, giving a rather elastic meaning to the term, of hospitals for the sick, their growth in number and development. There have been periods of enthusiasm and periods of comparative indifference, but we have now reached an era which is not the less enthusiastic for being ordered by system and tempered by science. Dr. Parker shows that perhaps the earliest hospitals were those which, from about 500 B.C., accompanied the foundation of monasteries for the exercise of that religion of Buddha to which one-third of mankind still adheres. Not much later the Grecian Temples of Æsculapius seem to have begun to treat patients medicinally, and even earlier Greece had "a highly trained and well-paid public medical service" as well as many general practitioners, who, it is to be hoped, were equally well remunerated by grateful patients. Nor was Rome slow in establishing *valetudinaria* for rich, poor, and slaves, and the facility with which history repeats itself is suggested by the remark of Aulus Celsus that the medical officers of large hospitals had so many patients that it was difficult to give them individual care.

The social, political, and military troubles which eventually led to the collapse of the Roman Empire were highly inimical to the preservation of hospitals, and at one time Constantine actually ordered the public hospitals to be closed, though Dr. Parker makes the plausible conjecture that the order was really directed against Pagan shrines. When, after the inevitable period of struggle, Christianity came to its own, what may be called the modern development of institutions for the cure of disease began. They were established in most parts of Europe and were undoubtedly very numerous, though we may not be quite ready to accept the arithmetic of Louis VIII., who said that, at the end of the first quarter of the thirteenth century, there were in France 2000 hospitals. France was a much smaller country then than now, and that our ancestors were given to exaggerating figures we know from their fantastic estimates of the size of armies and the numbers of the slain in great battles—nobody can possibly believe, for instance, that 130,000 men fought at Bannockburn, or that 166,000 were drawn up in battle array at Crecy. It is the Church that we have to thank for the rapid increase in hospitals during many centuries. At quite an early date every bishop had his own hospice for the sick, and many of the cathedrals had them also—the famous, and still existing, Hôtel Dieu in Paris was dependent upon the Chapter of

Nôtre Dame. Nor was the individual founder, who was by no means invariably a monarch, lacking, as London knows full well. A "war-stricken and dismembered Christian world," to use Dr. Parker's phrase, looked upon it, as Rahere did, as a Christian duty to found infirmaries.

To Islamism as well as to Christianity these works of mercy were a duty, and the empire of the early Caliphs had many examples from which to draw inspiration. As early as 707 the Caliphate set up a hospital for the sick at Damascus, and in the same century Haroun al Raschid ordained that every new mosque at Bagdad should be accompanied by a hospital. The noble Bimariston hospital, established in Cairo in 1284 with an income equivalent to £25,000 a year of our money, still exists in part as a thoroughly modern ophthalmic hospital. When leprosy was rife during two or three centuries religious fervour was lending to the Crusades, and the Gilds were growing powerful, "hospitals soon became the passion of the age" and Orders of Hospitallers arose—the Teutonic Knights, the Knights Templars, the Knights of St. John of Jerusalem, the Lazarists, who especially tended lepers, the Order of St. Antony, and the Order of the Holy Spirit, the most active of them all, whose patients were called "Our lords the sick." By the year 1300 this Order had created 900 hospitals, one of which is counted among the ancestors of our own St. Thomas's. In these ancient "hospital movements" England did its fair share and 400 new ones appeared between 1100 and 1300, and here, as elsewhere, as lay management grew more efficient, ecclesiastical patronage was gradually withdrawn. The revolutions, great and small, sudden and gradual, which make up the sum of history, have extinguished vast numbers of ancient and mediæval hospitals, but it by no means follows that the world has lost by mere reduction of numbers, though for the matter of that there are certainly a larger number of hospitals, properly so called, in this realm to-day than at any former period. Increase of population and growth of specialisation must necessarily add to them, though it is obvious that specialisation has its perils. The hospitals of the Middle Ages owed as much in proportion to private benevolence as their descendants and representatives of to-day, and Dr. Parker has done well to remind us of the illustrious pedigree of institutions which never did better work than now, or did it amid more serious difficulties. Throughout a large part of their history they have owed more to voluntary effort, in money or in service, than to the patronage of Church or State. Founded upon human devotion, in one form or another, they are now more than ever dependent upon it, and it is well for humanity that it should be so. The State may foster and protect, but the real duty lies at the door of every man of good will.

AN EPIDEMIC OF ERYTHEMA NODOSUM.

A FEW weeks ago [1] we reviewed some of the evidence indicating that erythema nodosum is a manifestation of tuberculosis. Our article was written by way of comment on an outbreak of erythema nodosum reported by Dr. Maurice Mitman in the same issue of THE LANCET. It is interesting to read an account from Sweden [2] of similar observations in a girls' school during the early part of 1926. The author, Dr. Arvid Wallgren, of Goteborg, defined the disease in 1924 [3] as the exanthem of tuberculosis, and stated that it appeared at the end of the incubation period at the onset of tuberculin sensitiveness. He regards it as an individual rather than a general reaction in persons with a particular diathesis. The remarkable account which he gives of the epidemic supports this view. A girl of 11, with a history of scrofuloderma at 1½ years but of no other ailment, began in November, 1925, to cough and lose appetite and weight but was not incapacitated from attending regularly at school. In the middle of January she joined a class consisting of 34 girls aged from 10 to 11 yea She then had an obstinate cough and was feeli poorly. About eight weeks after her arrival the oth children, who had previously been in good healt sickened one after the other until 18 were confin to bed, 12 with fever and erythema nodosum and with bouts of fever that lasted for periods varyi from one and a half to seven weeks, and resist diagnosis by the ordinary methods. The newcon was isolated in May, and found to have advanc pulmonary tuberculosis with massive infection of t sputum and a positive Pirquet reaction. The oth were carefully examined, and except for three w had signs of earlier infection, and may be presum to have been immunised, the entire class was fou infected. Under X rays 13 had what were descri as obvious hilum shadows, 4 had suspicious hil shadows, whilst 14 had no detectable chang Six of the 13 had erythema nodosum and 6 had fe with no local symptoms; the remaining one g no outward signs of illness. Of the four suspe one had erythema and three were apparently w Four of the erythema cases had no suspicious h shadows. None of the class lived in tubercul surroundings.

[1] THE LANCET, Oct. 8th., p. 761.
[2] Jahrb. f. Kinderhk., 1927, Bd. cvii., Heft 5/6, p. 313.
[3] Acta Pædiatrica, 1926, Bd. v.

THE ARMS OF THE ROYAL SOCIETY OF MEDICINE.

THE Royal Society of Medicine's new coat-of-ar which we illustrate below, is the gift of Sir StC Thomson. During his presidency it was decided t the Society ought to bear arms, as is the custom other Royal Societies, and a committee was for to discuss the form they should take. After l deliberation a design suggested by Mr. Martin Tra was submitted to the College of Heralds, by whor was accepted without criticism. Formal applicat was then made in Sir StClair Thomson's name, and patent has now been granted. In heraldic langu the coat is described as follows:—

Arms.—Per pale vert and gules, the serpent of Moses or, entwined round a tau cross argent.

Crest.—Three sprigs of the herb "all-heal" proper.

Supporters.—On the dexter side a representation of St. Cosmas and on the sinister side a representation of St. Damian both proper.

Motto.—"Non est vivere sed valere vita."

Thus the serpent is not (as might be supposed) the well-known representative of Æsculapius, but the raised by Moses to heal the people in the wilder The shield, on which the serpent is imposed divided vertically, half being red to symbolise Surg and the other half green to symbolise Medicine. the red side stands the surgeon carrying a knife, on the green side stands a physician holding Italian drug jar. These two figures are SS. Cos and Damian who suffered martyrdom in Italy in early days of Christianity, and, possibly owing to manner of their deaths, have long been regarde Catholic countries as the patron saints of medi and surgery. They were the patrons of the anc Guild of Barber Surgeons, and are shown in silve the beautiful instrument-case which used to carried in the processions of the Guilds in the Mi Ages. The representation of them which appea the new coat-of-arms is taken from a stained-g window in the Pazzi Chapel in Florence. The is three sprigs of the herb all-heal or wound-w which are seen above the helm. This plant was u used in the Middle Ages for binding up wounds for making up medicines. The new presidential b

ill consist of the shield done in enamel and gold, id will be handed over by Sir StClair Thomson at ie Society's annual dinner on Nov. 16th. It will e worn on a wrought gold chain of Florentine orkmanship, which he has already presented for the resident's use.

THE CHEMISTRY OF MONSOL.

THE clinical and pathological data upon which is ised the claim of the Mond Staffordshire Refining o. to have found a safe and efficient germicide have cently been placed before the medical profession. he basis of monsol is an oil obtained in the manufac- ire of power gas by the Mond process. It is in no sense secret remedy, and Mr. H. T. Pinnock, chief chemist the company, has communicated to us what is iown of its composition. The oil is free from benzole, luol, naphthas, and the solid hydrocarbons present the oils derived from the manufacture of illuminating s. Further, the alkali-soluble substances which onsol contains are free from the carbolic and cresylic id which occur largely in ordinary tar oils. Other rdroxy-bodies which take their place are present to e extent of more than 30 per cent. Careful study is shown that they consist of aromatic carbocyclic mpounds possessing side chains of high molecular eight, and it is to the presence of these bodies (which e not of the true phenol group) that monsol owes its ecial properties. Finally, in order to increase its itivity and powers of penetration, monsol is epared in a colloidal state.

THE Huxley lecture on Recent Advances in ience in Relation to Medicine and Surgery will be livered by Sir Archibald Garrod, F.R.S., on ursday, Nov. 24th, at 3 P.M., in the Out-patients' all of the Charing Cross Hospital.

THE next session of the General Medical Council ll begin at 2 P.M. on Tuesday, Nov. 22nd, when r Donald MacAlister, the President, will take the air and given an address. The Council will continue sit from day to day until the termination of their siness. The *London Gazette* announces that the ing has nominated Sir Leslie Mackenzie to be for e years a member of the Council.

IT is announced that the Karalinska Institute at ockholm has awarded the Nobel Prize for Physiology d Medicine for 1926 to Prof. Johannes Fibiger, of penhagen, and the prize for 1927 to Prof. Julius agner-Jauregg, of Vienna. Prof. Fibiger has won world-wide reputation for research on the ætiology cancer, and Prof. Wagner-Jauregg introduced the eatment of general paralysis of the insane by alarial infection.

THE King has approved the award of one of the yal Society's Royal Medals to Sir Thomas Lewis r his research on the vascular system. The President d Council of the Society have awarded the Copley edal to Sir Charles Sherrington for his work on urology, and the Buchanan Medal to Dr. Major eenwood for his statistical research and other work relation to public health. Information about the ction of officers and council will be found in our news lumns.

STEPS have been taken within the last few months bring the University of London into line with some the older universities by the formation of a Society Medical Graduates. An inaugural dinner for the rmation of the society, and the appointment of an ganising committee, will be held at the Langham otel, Portland-place, W., on Friday, Nov. 25th, at 30 P.M. Sir StClair Thomson will preside. All edical graduates of the university are eligible for embership, and those who wish to attend the dinner e asked to write to the acting honorary secretaries, r. Dorothy C. Hare and Dr. Charles Franklin, at 4, Harley-street, W. 1, before Nov. 21st.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

CCXLIX.—THE TREATMENT OF POST-PARTUM HÆMORRHAGE.

I.* PLACENTAL.

SERIOUS hæmorrhage after the birth of the child may occur from the placental site as the result of failure of the natural mechanism of control. Traumatic bleeding from laceration of some part of the birth canal, usually the cervix or vestibule, is distinguished clinically by palpation of the abdomen when the body of the uterus will be felt hard and firmly retracted. In this article only bleeding from the placental site will be discussed, bleeding from lacerations being reserved for later consideration.

Control of bleeding is normally effected by the retraction of the walls of the uterus as it shrinks down and empties. The contractions of the third stage compress the uterine cavity and expel the after-birth; retraction compresses the uterine wall and the vessels passing through it and maintains control in the absence of active contractions. The mechanism can be seen at work most clearly during the classical Cæsarean section operation. There is often profuse bleeding from the uterine incision before the membranes are ruptured and the fœtus removed. After the escape of the waters and removal of the fœtus, the uterus shrinks down to half its previous size and its walls are more than doubled in thickness, and thereby the bleeding from the incision becomes greatly checked. After removal of the after-birth and the establishment of firm retraction there is no bleeding of moment from the placental site.

Causes of Failure to Control Hæmorrhage.

The causes of interference with the normal mechanism are much the same as those of failure of the uterine powers in the earlier stages of labour, and may be classified as follows:—

(1) General maternal states of which the most important are shock and grave anæmia (as from ante-partum hæmorrhage), toxæmic conditions and nephritis, fatigue, exhaustion and emotional states, overdosage with anæsthetic and analgesic drugs.

(2) Uterine conditions, such as over-distension by twins or hydramnios, fibroids, and adhesions to surrounding structures; exhaustion of the uterine muscle from severe or protracted labour or uterine sepsis, and possibly inherent muscular weakness from chronic inflammatory changes in the myometrium.

(3) Incomplete emptying of the uterus interfering with retraction such as retained placenta or portions of it.

Preventive Treatment.

Consideration of these causes will indicate lines for prophylaxis. More cases will occur in the practice of the careless and impatient; a thorough antenatal supervision and a proper conduct of the second and third stages of labour will reduce the incidence of bleeding almost to vanishing point.

In all conditions where there is an increased risk of post-partum hæmorrhage the attendant will be particularly on guard and have all preparations made. Antenatal treatment will be given in the toxæmias of pregnancy or other general disease, and precautions taken to avoid fatigue, serious exhaustion, and infection during labour. Rapid delivery when the uterine powers are exhausted and after serious hæmorrhage during labour—e.g., placenta prævia—is always dangerous. Hurry to effect delivery of the after-birth carries with it the risk of incomplete expulsion and its consequences. One special point may be mentioned. A full bladder—well recognised as inhibiting good uterine action in the second stage—may also interfere with the power to control bleeding in the third stage. Distension of the bladder should be watched for in

* Part II., Post-partum Hæmorrhage from Laceration, will appear next week.

the later part of labour, and the catheter passed on the first sign of the need for it. If labour is conducted with the patient on her left side she should be turned on her back during the third stage. The observation of the uterus through the abdominal wall, the manipulations for expression of the placenta, and for the control of bleeding, should it occur, are all more readily conducted in that position.

Signs and Symptoms.

There may be free and rapid loss per vaginam or blood may collect in the flabby and distended uterus and be largely concealed; hence the importance of constant or frequent observation of the state of the uterus by abdominal palpation. Unless there is no skilled assistance at hand or the attendant's attention is distracted by having to restore an asphyxiated infant or other urgent duty, it is wise to concentrate attention on the uterus, since early warning may be obtained by its softening and enlargement. At this stage rubbing and kneading will rarely fail to restore the hardness of the uterus, but once the large, soft, distended state is established restoration becomes more difficult. Abdominal observation should, therefore, be made frequently in spite of other pre-occupations. A watch should also be kept on the patient's face for pallor, on the pulse, and on the general condition for the usual evidence of hæmorrhage.

Local Measures.

If bleeding occurs before the placenta is born and massage and kneading do not produce immediate hardening so that the fundus can be compressed in the palm of the hand, the after-birth must be delivered, for firm and permanent retraction will not be secured till the uterus is empty. Unless sufficient contraction can be obtained to allow the fundus and upper part of the body to be grasped between the fingers and thumb, it is inadvisable to attempt expression, since success is unlikely and inversion readily occurs when the placenta is expressed from a relaxed uterus. If conditions are favourable expression should be tried by squeezing the uterus like a sponge from above downwards; if this manœuvre is not immediately successful it should be abandoned. Violent and prolonged efforts may get rid of the placenta by tearing away the detached portion and leaving some part still attached. If expression fails or the uterus remains large and flabby, the after-birth must be removed manually. This operation is recognised as the one among all internal manipulations that carries with it the greatest risk of infection, both because the fingers work in immediate contact with the placental site and because of the lowered general condition of the patient at the time. Nevertheless, the emptying of the uterus should not be postponed till the serious condition of the woman demands desperate measures, but should be done as soon as the failure to secure control of bleeding by obtaining firm uterine retraction becomes obvious. The hand must be gloved and every precaution taken to minimise the chances of infection being carried up to the uterus. The outside hand plays a very important part—it presses down and supports the flabby bag during the separation of the placenta by the inside hand; before removing the hand and placenta, the opportunity is taken to stimulate the uterus to contract by massaging it firmly from the outside, if possible, till it is felt to be gripping the hand within, when, so to speak, hand and placenta may be expressed from above. Keeping up the hold on the uterus through the abdominal wall, a hot intra-uterine douche (118° to 120° F. in the douche-can) is next given, the nozzle being run up to the fundus so that it can be felt there by the external hand. The douche should be copious—at least half a gallon—and the heat is the important matter. An antiseptic (e.g., tinct. iodi ℥ i. or ℥ ii., ad O i.) may be added so long as it is not poisonous or rapidly absorbed. Should the emergency be such that the douche is not ready at once, bimanual compression of the uterus must be carried out during the period of waiting. The hand is inserted into the vagina, preferably into the anterior fornix, and doubled up with the knuckles against th anterior wall of the uterus and the fingers behin the symphysis, while the external hand behind th posterior wall crushes the uterus down on to the fi and symphysis.

Very rarely does the hot intra-uterine douche fa but should it not prove effective, bimanual compressio must be resumed, as firm pressing together of th uterine walls acts as a substitute for retractio As soon as the uterus is empty its activity shou be stimulated by an intramuscular injection pituitary extract or a preparation of ergot. As show by A. Bourne and J. H. Burn, the injection of 2 uni of pituitary extract is sufficient and may be repeate in an hour; the most effective way of giving erg is to inject 1 mg. (or 1/65 gr.) of its active princip ergotoxin or ergotamine.

Hæmorrhage after Expulsion of the Placenta.

In hæmorrhage after expulsion of the after-bir treatment should follow on the same lines. Th failure of retraction may then be due either exhaustion of the uterine muscle or to retentio of a portion of the placenta. Frequent observatio of the uterus by a hand on the abdomen will gi early warning of relaxation, when massage a kneading of the uterus, together with the injectio of pituitary extract or ergotamine, will almost alwa prevent the condition from becoming serious. the uterus is too large to be contained between t thumb and fingers, it should be compressed betwe the two hands, squeezed empty of clot, and a h intra-uterine douche given at once. Owing to t danger of infection, the passing of the hand into t uterine cavity should be reserved for those cases which examination of the after-birth shows undoubt evidence of the retention of some portion of p'acent missing portions of membrane alone do not justi the risk of uterine exploration. In the gravest cas with rapid and profuse hæmorrhage, the urge necessity of its immediate control is a justification passing the gloved hand into the uterus, while t other hand compresses the uterine walls from t outside on to the closed fist within till contracti on to the inside hand begins. Very rarely, howev will more be required than bimanual compressi on to the fist in the vagina, for though it is diffic to exert compression over the whole of the lar soft bag of a relaxed uterus, squeezing of the wa together will control the bleeding from the placen area.

The whole palm may be spread out over the posterior wl and fundus and the uterus squeezed down against symphysis and fist in the vagina. Fatigue, especially of external hand and arm, may be lessened by leaning weight on that hand and, when relief is needed, the nu or other assistant can press on the hand and even allow to be withdrawn for a rest, keeping up the pressure me time. The elbow supporting the inside hand obtains purchase by being wedged into the bed, and, acting passiv as the fixed object against which pressure is made, t arm does not tire so quickly. Some pressure on the ac may also be exercised during compression and may h to check bleeding. As uterine retraction returns, compress may be relaxed until it is possible to substitute a gradua compress under an abdominal binder. Plugging of uterus is a difficult and dangerous operation if perfor outside a hospital, since the necessary amount of ste material will rarely be immediately available, and n only be adopted if the recovery of retractile power in uterus is long delayed. Strips of turkish towelling or ot improvised material may be boiled and wrung out wh compression is maintained and the uterine cavity tigl filled in desperate cases.

Conclusion.

The above measures provide a consecutive plan campaign which will control bleeding even in the m serious cases provided the exhaustion of the pati has not reached a degree that renders recovery function in the uterine muscle unlikely. Treatm for shock and collapse from loss of blood should foll the checking of hæmorrhage.

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Special Articles.

HISTORY OF BRITISH MIDWIFERY.

THE FITZPATRICK LECTURES.

Dr. Herbert Spencer delivered the FitzPatrick ctures at the Royal College of Physicians of London n Nov. 8th and 10th, his subject being the History of ritish Midwifery from 1650 to 1800.

After introductory remarks on the midwifery rceps and the secrecy with regard to their invention nich the Chamberlens maintained for nearly a hundred ars, Dr. Spencer stated that this secrecy had a nsiderable influence in introducing the man-midwife to the practice of midwifery. His résumé of the es of the Chamberlens, from Aveling's work, showed e forceful character of the most prominent members the family, their multifarious schemes for the nefit of humanity and themselves, and the influence ey obtained, as a result of the possession of their cret, with king, lords, commons, and people. They ade efforts to obtain the incorporation of midwives der their own supervision and were frequently in nflict with the College of Physicians. Hugh amberl n the elder rendered a service to British prac- ioners by translating Mauriceau's "Observations" 1673; in the preface to the translation he nounced that his family had a secret method of livering women (the forceps), which, however, failed ien tried on one of Mauriceau's patients. Dr. Hugh amberlen the younger was a respected Fellow of e College. Dr. Peter Chamberlen, who had been cted a Fellow on the understanding that he adopted more sober dress, was frequently subjected to ciplinary measures by the College and was finally prived of his Fellowship on Nov. 23rd, 1649.

In 1650, said Dr. Spencer, Ent carried off e manuscript of Harvey's "De Generatione imalium" and published the work in 1651. It ntained the chapter "De partu," which was the st original work in midwifery to be published by British author. Of the chief writers and writings midwifery which followed, up till 1800, the lecturer ve biographical and bibliographical particulars. The iters, 25 in number, ranged from Harvey to Inman. Attention was directed to John Maubray as e first British teacher of midwifery, in 1725, to the portant action taken by the University of Edinburgh establishing, for the first time, a professorship of dwifery in 1726, and to the rapid improvement ich followed the general use of the forceps. After ing an account of the opposition of midwives and ctors to the new class of men-midwives, which had gely died down by the end of the eighteenth ntury, Dr. Spencer described the epidemics of erperal fever which followed the establishment of ng-in hospitals, and mentioned works on the bject from the time of Willis, who in 1660 gave it e name of *febris puerperarum*, to that of A. Gordon, o, in 1795, pointed out its infectious nature and its nnexion with erysipelas, and recommended disin- fion of the attendants. Nathaniel Hulme was of e opinion that puerperal fever was as much an iginal or primary disease as ague. Harvey laid the undation of our study of the fever by recognising e large internal wound produced by the separation the placenta as the starting point of the disease. he British obstetricians early rejected the theory of nk-metastasis and the view that the disease was identical with typhus and limited the causes to local fection of the uterine wound and general infection om foul air. Measures were devised for disinfecting the ng-in room by washing and fumigation, and the uterus by injections (Harvey) and drainage (Charles White).

In a brief review Dr. Spencer alluded to the work Harvey on embryology and to the illustrated work W. Hunter, Smellie, and Denman on the anatomy the pelvis, pregnant uterus, and fœtus; to the tings of Smellie, Burton, and W. Johnson on pelvimetry and cephalimetry; of Smellie and Fielding Ould on the mechanism of labour and of Smellie on deformed pelvis. With regard to the management of pregnancy and normal labour, John Maubray was the first British obstetrician to advise prematernity care; Charles White and Leake introduced hygiene into the lying-in room; John Harvie was the first to employ abdominal expression of the placenta, and Pugh and Smellie were pioneers in the prevention and treatment of asphyxia in the child. Version was usually podalic, and Pugh performed it bimanually. The forceps, invented by Peter Chamberlen, was first made public by Chapman in 1733. The invention of the pelvic curve which had been erroneously attributed to Smellie, was probably due to Levret, though possibly to Pugh. The fillet was soon abandoned owing to the injuries it inflicted on the child; but the lever was preferred by many men-midwives and the "living-lever" of Aitken was an ingenious instrument for the conversion of a face presentation into a vertex. The method of delivering the after-coming head, often attributed to Mauriceau and Smellie, was invented by Giffard. The milder degrees of contracted pelvis were treated by version, forceps, or lever, and the more severe forms by craniotomy, Cæsarean section and symphyseotomy being rarely performed on account of the danger attending them.

Induction of premature labour (1756) and Lucas's method of diminishing the size of the child by restricting the diet of the mother (1794), were practised in order to avoid craniotomy, which was performed with excessive frequency by Osborn. The hæmorrhages most frequently recorded were of the ante-partum variety. Placenta prævia was described by Giffard (1731) and was usually treated by podalic version. Post-partum hæmorrhage was treated usually by sedatives and tonics, sometimes by styptics; cold applications were also employed; there was no record of manual compression of the uterus to control hæmorrhage. Several cases of inversion and of rupture of the uterus were recorded, and McBride was the first to publi h a case of labial hæmatoma. Convulsions were treated by bleeding, blistering, opiates, hot baths, and clysters. Manningham recommended bleeding as a prophylactic. A few cases of ectopic gestation and of hydatidiform mole were published; of the latter the most interesting was Giffard's case, which died 12 months after delivery, apparently from chorion-epithelioma.

In conclusion, the lecturer said that during the 150 years since Harvey published his "De Generatione Animalium" a great advance had been made in the science and art of midwifery. This was due chiefly to the introduction of male practitioners, many of whom were men of learning and devoted to anatomy, the groundwork of obstetrics. The institution of lying-in hospitals by these male practitioners had an important influence in promoting teaching and research. The general introduction of the use of the forceps placed in their hands means of delivering women previously unknown, and by its results gradually overcame the opposition of the midwives, surgeons, and physicians to the new class of men-midwives. The action of the College of Physicians in instituting a special qualification of "Licentiate in Midwifery" was not without influence in improving the status of those practising midwifery, although the qualification ceased to be granted in the year 1800.

The characteristic of British midwifery at this period was conservatism. Although by some practitioners carried to excess, it led to laudable attempts, exclusively British, to avoid the operations of craniotomy which sacrificed the child, and Cæsarean section and symphyseotomy which so often proved fatal to the mother.

The forceps was sometimes used unnecessarily then, as now; but the abuse of operative methods of delivery is much greater at the present time, and no better corrective of that abuse could be prescribed than a study of the careful records of the British obstetricians of the seventeenth and eighteenth centuries, showing the resources of that "perfect operatrix," Nature, in effecting delivery.

MEDICINE AND THE LAW.

Unsuccessful Allegation of Negligence against Surgeon.

THE jury was not asked to express an opinion in the action of Beckh *v.* Sinclair in which the plaintiff claimed damages for personal injuries alleged to have been caused by the negligence of a surgeon who operated upon her, her knee having been burned by a hot-water bottle during the operation. After hearing the evidence on both sides the Lord Chief Justice stopped the action and said he was satisfied that there was no evidence to go to the jury. It was sought to make the surgeon responsible for the injuries in two ways. First and foremost it was said that the nurse was negligent and that the operating surgeon must answer for it under the doctrine of *respondeat superior*. According to the plaintiff's counsel there had been carelessness for which the surgeon was liable, because a surgeon was responsible for the negligence of a person assisting him at an operation and acting under his control. "If a surgeon delegates to a nurse the duty of placing and looking after the hot-water bottles at an operation he is responsible if she performs her duties carelessly and causes injury to the patient; a nurse is under the orders and control of the surgeon alone from the moment when the door of the operating-room is closed for the operation to begin." This contention seems to beg the question. It assumes that the surgeon delegates to the nurse the duty of looking after hot-water bottles; but such a duty must be the independent duty of the nurse; no surgeon is conscious of delegating it. Is the surgeon any more responsible for the hot-water bottles than he is for the temperature of the operating-table or for the proportions in which a lotion is mixed? Against this contention made by plaintiff's counsel may be set the professional evidence of two surgeons called as witnesses on behalf of the defence. A modern surgical operation, said Mr. Donald Armour, is a ritual at which, if it is to be successful, every detail must be carried out with meticulous care. Those who are present constitute a team, each member of which is trained in his own duties. As a rule a surgeon does not interfere to see whether the other members of the team have carried out their particular duties. The preparation of a patient is entrusted to the nurse, and this preparation includes the task of seeing that hot-water bottles are not in dangerous proximity. The modern nurse, Mr. Armour added, is a highly trained and skilled technician; "she is not a surgical tweenie." Mr. H. S. Souttar said that, unless there were a separation of functions at an operation it would be impossible to carry on modern surgery. It would be exceedingly dangerous if the surgeon allowed his attention to stray to any matter other than that on which he was engaged. After this evidence the Lord Chief Justice stated that he was satisfied that the surgeon, Mr. Sinclair, was not responsible for the negligence of the nurse—if indeed there were any negligence on her part, as to which issue he expressed no opinion. It was common ground, said Lord Hewart, that the nurse was to be paid by Miss Beckh, the patient, and was in no sense the servant or agent of Mr. Sinclair. As a second line of attack the plaintiff's case alleged, a little faintly, that Mr. Sinclair had himself been personally and directly negligent. He might, it was suggested, have exercised a superintending eye and satisfied himself that there was no hot-water bottle in a position likely to cause injury to the patient. This, said the Lord Chief Justice, was a far-fetched suggestion for which there was no support in the evidence. Judgment was therefore entered for the defendant on the claim and also on the counterclaim with costs. The counterclaim was for 15 guineas fees, which, of course, would not have been payable if the plaintiff had been able to prove the negligence which she alleged.

The case seems to have elicited a judicial confirmation of the rule that a surgeon has no personal responsibility for supervising the heating and placing of hot-water bottle. It must not, however, be relied upon in too general a way. All that it amounts to is that, in a particular set of facts, the court, after hearing the evidence, said there was no case to go to the jury. The court granted a temporary stay of execution, which presumably means that the plaintiff may seek to obtain from the Court of Appeal a decision that there was at any rate some scintilla of negligence, some prima facie appearance of carelessness displayed by the mere fact of injury, upon which the opinion of a jury should have been taken. It will not be forgotten that the facts of one case can differ very widely from the facts in another. Among the salient facts in Miss Beckh's case are the fact that what was performed was a sigmoidoscopic examination under an anæsthetic rather than a surgical operation in the ordinary sense, the fact that this took place apparently in her own home, and the fact that she herself paid the nurse. Her evidence was to the effect that the surgeon had said he would require a nurse, and that she asked him to choose one; on the day before the operation, she said, this particular nurse presented herself and made known her requirements, which included hot-water bottles. This evidence was hardly strong enough to establish that the nurse was the servant of the surgeon rather than of the patient.

Professional Secrecy.

A recent issue of the *American Journal of Surgery* contains a full-page advertisement in which the Post Office Department of Philadelphia offers a reward of 2000 dollars in connexion with the apprehension of one Frank Kiekart, a man alleged to be wanted by the Post Office Department for mail robbery and by the States of New York and New Jersey for murder. The advertisement contains two photographs of Kiekart, with a list of his eight aliases and a description of his appearance and habits. It adds that he is believed to be suffering from a fistula or other rectal ailment, that this is of so serious and painful a nature as to necessitate frequent medical attention, and that he is therefore likely to consult doctors or submit himself for examination at hospitals. The advertisement ends as follows: "It is requested that any doctor who may have treated a man for fistula or other rectal trouble, and who [*sic*] answers somewhat the description of Kiekart, communicate with the local post office officials or any of the undersigned."

This offer of a reward to physicians to induce a breach of the professional rule of secrecy raises an interesting problem of ethics in an unusually direct way. The doctor may well regard it as his first duty to give Kiekart such remedial treatment as his case requires, irrespective of any question whether he is a saint or a sinner. If a consulting-room or a hospital is simply to be a trap for a hunted man he will naturally hesitate to apply for the treatment which is necessary. It is usually laid down that an exception may or should be made to the rule of absolute professional confidence where a doctor knows that a crime is about to be committed, but this advertisement seeks to catch a criminal not to prevent a crime, though of course a criminal, if hunted and desperate, may be regarded as a man likely to commit a crime. In any case one may assume that a doctor, before taking any such step as is requested of him by the Philadelphia Post Office, would warn the patient and recommend him to surrender himself. English judges have occasionally reminded the medical profession that, in such circumstances as have been indicated, members have duties as citizens as well as duties as doctors. If a practitioner does his duty as a citizen he should not need the stimulus of 2000 dollars. The offer of a reward, indeed, in a journal circulating in hospitals, complicates the position, for the advertisement may be seen by some subordinate member of the hospital staff; it would be hard if a patient, protected by the professional tradition of confidence, should be betrayed by a hospital employee.

A False Declaration.

As a sequel to the now notorious channel swim
ax, Dr. Dorothy Cochrane Logan was summoned
the instance of the Director of Public Prosecutions
having wilfully made a statutory declaration which
s false in certain material particulars. The prosecu-
n expressly disclaimed any suggestion that the
fendant had attempted to obtain by false pretences
e reward which the *News of the World* had offered.
vertheless, as the Lord Mayor observed in fining
£100 with £10 10*s.* costs, she had committed an
ence akin to perjury; she was not, of course,
ng prosecuted for hoaxing the public, but she had
ated with contempt and ridicule a most important
l convenient part of our legal system by depreciating
value of a statutory declaration.

The Statutory Declarations Act of 1835 was passed
cut down the then existing multiplicity of oaths
l to substitute something a little less formal.
er referring to such varied matters as the oaths
ninistered at Oxford and Cambridge Universities,
oaths then taken by churchwardens and sidesmen,
oaths of applicants for patents and certain oaths
ler the Pawnbroking Acts, the Act of 1835 proceeds
offer facilities for the making of voluntary declara-
ns because (as the preamble to Section 18 recites)
may be necessary and proper in many cases not
ein specified to require confirmation of written
ruments or allegations, or proof of debts, or
the execution of deeds or other matters.
ordingly, it allows voluntary declarations in the
owing well-known form: "I, A. B., do solemnly
sincerely declare that . . . . and I make this
mn declaration conscientiously believing the
ie to be true and by virtue of the Statutory
clarations Act, 1835." This section provides
t the wilful making of a declaration false or
rue in any material particular shall be a mis-
neanour, but at this point the law is superseded
Section 5 of the Perjury Act of 1911, which lays
n the maximum penalty for conviction on indict-
nt as imprisonment for two years or fine or both.
Criminal Justice Act of 1925 allowed this offence
be dealt with summarily if the court thinks this
rse expedient in view of any representation made
the prosecutor or in view of the character and
ecedents of the accused, the nature of the offence
the absence of circumstances which would make
offence one of a grave or serious character.
ring these words in mind, the court found itself
to dispose of Dr. Logan's foolish escapade
marily and without recourse to maximum penalties.
vas stated on her behalf that, when the hoax was
ied out, she had no idea that any statutory declara-
would be required; when she went to the offices
he *News of the World*, it was added, the form of
aration was put before her for signature, already
pared. If these circumstances in any way mitigated
offence, the Lord Mayor presumably took them
account. Meanwhile certain newspapers, ungrate-
for the material which the incident has furnished,
been inclined to encourage the General Medical
ncil to stern disciplinary measures. What the
ncil—which has received encouragement or dis-
agement from similar sources before—might do
lled upon to deal with Dr. Logan's ill-considered
enture it would be improper to forecast; but
essional opinion does not in general judge harshly
ffences committed without unworthy motive.

OYAL LIVERPOOL CHILDREN'S HOSPITAL.—On
27th the recently reconstructed portion of the hospital
opened as a ward designed chiefly for the reception of
alty cases for observation and for post-operative care of
r operation cases for one or two nights. This had been
o be particularly necessary for the adequate treatment of
ren who had had tonsils and adenoids removed. The
ceremony was the unveiling of a cot endowed in memory
ueen Alexandra, who, for 60 years, had been Patroness
he hospital. The ward was then declared open and
ly a presentation was made to the matron, Miss Worsley,
he termination of her 20 years' service to the institution.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Local Government Administration in Northern Ireland.

THE Commission appointed by the Ministry of Home Affairs in April, 1924, to inquire into the conditions of local government in Northern Ireland, has now issued its report, a comprehensive document of 242 pages which bears witness to the wide extent and important character of the labours of the Commission. It deals with the poor relief services, the local administration of medical and public health services, asylum administration with recommendations regarding the dispensary system, and with public health administration in general. By far the most important change envisaged by the Commissioners is the reorganisation of the whole of the services on a county basis, as opposed to the present methods which are anomalous in many ways and involve widespread overlapping. Many of the recommendations of the Commissioners, therefore, centre on the way in which the new county administration, in all its branches, should be organised, administered, and supervised. The Commissioners wish the medical services to be entirely separated from any connexion with Poor-law administration, and they propose, therefore, that county committees and local relief committees should be established in place of the boards of guardians, that the workhouses should be replaced by a limited number of comfortable county homes for the reception of various classes in need of help, and that there should be definite medical supervision in these homes.

Apart from the general question of organisation under the new county scheme the report makes other recommendations for the improvement of the medical services of the country. As far as hospitals are concerned, it suggests that each district hospital should have a maternity ward, and that facilities should be provided for giving effect to child welfare schemes, and for the inspection and treatment of school-children. Recommendations are also made regarding the nursing services and provision for infectious diseases. The report deals at length with the question of tuberculosis, for the Commission was of the opinion that the present methods of treatment are too costly and on the whole ineffective in stamping out the disease. It recommends that sanatorium treatment should be provided for early cases, where there is reasonable hope of recovery; that advanced cases should be dealt with by the district hospitals; that more institutional treatment should be made for non-pulmonary forms of the disease; that the Tuberculosis Acts which are at present permissive should be made obligatory on all county health committees; and that power be given to local authorities to remove compulsorily to hospitals or sanatoriums all persons suffering from the disease, where infection is likely to occur.

The report contains many reservations, and among these perhaps the most important concerns medical benefit under the National Health Insurance Acts. There was great difference of opinion among the members of the Commission on this point, and ultimately the proposal to introduce these benefits was defeated by a large majority; a reservation favouring its introduction, however, was signed by several members and appended to the report.

As far as the financial aspect of the recommendations is concerned no pronouncements could be made, and the report does not attempt to give an accurate forecast of the effect of the suggested provisions on the rates. Some of the suggestions will involve increased expenditure, but, on the other hand, economies may be fairly expected, and much will depend on the efficient and prudent administration of the whole scheme.

The Commission was composed of 39 members sitting under the presidency of Dr. R. J. Johnstone,

M.P., professor of gynæcology in Queen's University, Belfast. The medical members were Prof. J. A. Lindsay, Lieut.-Colonel W. R. Dawson, Dr. David Gray, Dr. J. M. McCloy, Dr. W. McLorinan, Dr. H. S. Morrison, M.P., and Dr. J. D. Williamson.

Irish Free State Medical Registration Council.

The first meeting of this council was held on Nov. 1st in Government Buildings, Dublin. All the members were present. They were welcomed by Mr. R. Mulcahy, Minister for Local Government and Public Health, with who were Mr. E. P. McCarron, Secretary of the Department, and Mr. E. F. Stephenson, the Chief Medical Officer. Dr. Denis J. Coffey was unanimously elected President of the Council. The Council then considered arrangements for the establishment of the Register, which must be established not later than May 28th, 1928, and for drafting the necessary regulations under the Act. It is expected that meetings will be held each month for some time to come. The Council is fortunate in its choice of Dr. Coffey as President. He is familiar with the Medical Practitioners Act, as he had a large share in the negotiations which preceded legislation. Moreover, as a member of the General Council of Medical Education and Registration he has experience of the kind of work in which the Council will be engaged.

Ulster Medical Society.

The first meeting of the session was held in the Medical Institute, Belfast, on Oct. 27th, when the incoming President, Dr. J. C. Rankin, delivered an address in which special attention was called to the importance of the preliminary subjects in medical education.

UNITED STATES OF AMERICA.

(FROM AN OCCASIONAL CORRESPONDENT.)

Immigrants not Protected by Medical Certificate.

AN immigrant, having successfully passed the medical examination of the United States Public Health Service and having been found otherwise admissible, was for some reason referred back by the board of special inquiry to the medical officers. A second examination showed that the would-be immigrant was suffering from clonorchiasis, which comes under the category of "a loathsome or dangerous contagious disease." It was attempted, on behalf of the immigrant, to show that he had already been certified by the competent authorities to be free from all such diseases. However, a U.S. circuit court of appeals found that the first certificate had no finality. Since the certificate of the medical officers, which is necessary for exclusion on medical grounds, may be challenged by the alien, it is clear, the court holds, that it may also be challenged by the Government.

Persisting Casualties of the War of Independence.

This year's celebrations of the Declaration of Independence resulted in 195 deaths and 3179 injuries in 600 cities. Thirty-one of those killed were under 6 years of age, 122 between 6 and 20 years of age. No less than 16 deaths were due to the eating of fireworks by small children. Forty-eight deaths were due to the clothing being ignited by so-called harmless fireworks. The American Musuem of Safety, by which these figures are made public, points out that a yearly repetition of these fatalities may be expected, unless precautions are taken to prevent them. It is urged that instruction in the prevention of such accidents be made a part of the curriculum of every school.

Symposium on Feelings and Emotions.

Anyone who believes that psychology has attained to the status of a science should consult the papers presented at the symposium of psychologists in honour of the opening of a new psychological laboratory at Wittenberg College, Ohio. These papers were written by some of the most distinguish psychologists of Europe and North America professors from Harvard, Hopkins, Princeton, Toron and the larger State universities, from Vien Liepzig, Rostock, Paris, Geneva, Copenhagen, a Turin. Yet the reader will be forced to the melanch conclusion found in the paper by Prof. C. E. Spe man, of London University, that psychology ma little scientific progress and its deductions often la absolutely a scientific basis. The conference, wh was held from Oct. 19th to 23rd, was a triumph organisation, due to the energy of Dr. Martin Lut Reymert, formerly of the University of Oslo, and n director of psychology at Wittenberg College.

Efficacy of Vaccination Laws.

The American Association for Medical Progr has made an interesting study of the incidence small-pox in relation to the vaccination laws. number of States were divided into four grou according to whether their practice was (1) compuls vaccination, (2) compulsory vaccination restrict (3) compulsory vaccination according to option local health boards, or (4) compulsory vaccinat only in the presence of small-pox. During the per 1921–26 there were, in the States listed, 304,045 c of small-pox, resulting in 3710 deaths. The grou States in which vaccination is compulsory for al part of the inhabitants comprise 31 per cent. of population of the country and yet have suffered o 7 per cent. of the total incidence of small-pox. St where vaccination is restricted, for example, by inclusion of a conscience clause, constitute 10 cent. of the total population and have experien 24 per cent. of the small-pox incidence, and 30 cent. of the total mortality. It is, of course, admit that regulations are not enforced everywhere w uniform success, but the figures suggest that morbi and mortality from the disease are affected by S regulations.

ROYAL MEDICAL BENEVOLENT FUND

THE following are some additional cases relieved at last meeting:—

Widow, of L.R.C.P. who died in 1926. When her hus died the Fund grant, together with his Epsom and Goverm Pensions, ceased. Applicant tries to support herself by env addressing at which her earnings rarely exceed 10s. a Total help given £35 and £26 voted in quarterly instalm This grant is supplemented by the Royal Medical Benev Fund Guild who give 10s. a week.

Widow, aged 70, of L.S.A. who died in 1906. Applicant her three daughters and married son live together. E daughter, aged 46, who has an annuity of £20, is an epil Second daughter looks after the house; son, aged 43, ma one child, is an invalid receiving help from the B Legion and allows his mother £52 per annum. Youngest dau 32, is a dancing instructress and made £40 last winter, £ which she paid to her mother for her keep. Friends gave and applicant has the Old Age Pension. Rent and rates ar to £48 per annum. Previous help amounts to £81. Vote in quarterly instalments.

Widow, aged 59, of L.R.C.P. who died in 1904. Only in is rent from a house which amounts to £65 after dedu expenses for repairs. Rent, including fire and light, £4 annum. Asks for renewal of grant as her income is insuffi to meet her expenses and increased rent. Previous help Voted £10 in two six-monthly instalments.

Daughter, aged 64, of M.R.C.S. who died in 1890. U 1922 supported herself as a lady's companion, but owi ill-health had to give up work. Income from investr amounts to £52 per annum; relations give £4. Applicant not pay any rent but £5 for rates. Voted £15 in four qua instalments.

Subscriptions may be sent to the Honorary Treas Sir Charters Symonds, at 11, Chandos-street, Caven square, London, W. 1.

ANCOATS HOSPITAL EXTENSION.—The pressure Ancoats Hospital, Manchester, has become so severe— is a waiting list of 1000—that the committee of ma ment has decided upon extensions which will cost £10 A large adjoining site is to be acquired, upon which w erected casualty and pathological departments, two op ing theatres, wards for men, women, and children, 100 beds, and full accommodation for the extra nurses female staff.

Public Health Services.

TUBERCULOSIS IN BIRMINGHAM.

THE FUNCTIONS OF DISPENSARIES AND SANATORIUMS.

THE annual report of the chief tuberculosis officer r Birmingham (Dr. G. B. Dixon) shows a satis- ctory decline in the incidence of all forms of iberculosis, while a comparision of the five-year eriods, 1901–05 and 1922–26, shows a reduction of) per cent. and 67 per cent. in the mean mortality om pulmonary and non-pulmonary forms respec- vely. Both cases and deaths are still about twice frequent in the central wards as in the outer ring, it it is encouraging to note that the most rapid cline in the death-rate is taking place in the central ea.

Dr. Dixon gives seven reasons for this decline, e most important being "a higher general intelli- nce among the people," and a growing appreciа- n of the laws governing the maintenance of health. ie others, he says, include Koch's discovery of e bacillus and the work of the investigators who llowed him, the isolation of patients in institutions, struction given in the homes of the tuberculous d at sanatoriums, improvement in the food of the ople, and greater devotion to outdoor exercise ong both sexes. It seems unlikely, however, at the segregation of patients can at the present ne play any important part in the diminution infection, for in the Birmingham sanatoriums e average period of treatment does not exceed ee months for adults, while 40 per cent. of e patients discharged were classified as Group III. .e., were suffering from advanced disease at the ne of discharge. And though the instruction given dispensaries and elsewhere has doubtless had some luence in diminishing the cases of infection, it disconcerting to learn that in 1926 the health itors found that in more than 1000 cases a tuber- ous patient was sharing a bed with another son. It should be added that in Birmingham ery effort is made to rectify this deplorable state affairs and that 955 beds are at present loaned or hire in tuberculous families.

The statement that nearly 20,000 attendances re made at the antituberculosis centre "for atment alone" may well raise questions as to nature of the treatment provided and whether adequate return can be expected from the endance of the tuberculous at an out-patient ic. Experience suggests that a dispensary is re valuable when it is kept for purposes of con- tation. There are no short cuts to a diagnosis pulmonary tuberculosis in its earlier stages, and uberculosis officer who realises the importance the evidence to be obtained from the history of patient, who appreciates the need for a searching ical examination, and who has facilities for iography, will require at least half an hour for investigation of each new case. Usually more n one examination of the patient will be necessary well as repeated sputum and radiological tests in btful cases. The overworked general practi- ner, especially if his practice lies in an industrial a, cannot examine every patient complaining of spicious chest symptoms with the care that is essary if the earlier manifestations of tuber- osis are to be discovered. The value of the dis- sary lies in providing the general practitioner with information he requires without any serious upon his own time. If the dispensary is used an out-patient clinic the tuberculosis officer will l much of his time wasted in seeing a succession patients, most of whom are the victims of social umstances rather than of disease and for whom can do little. Nor will he approach the real sultation case with the freshness of mind required the investigation of problems which call not only skill, but for alert intelligence. Inflated atten- ces at dispensaries should therefore be avoided and treatment, except of certain definite kinds, should be discouraged in them.

It is noteworthy that among adult patients attending the antituberculosis centre, bacteriological support for the diagnosis was lacking in 68·7 per cent. Of children attending for a first examination and newly notified, no less than 194 out of a total 196 belonged to the "pulmonary tuberculosis T.B. minus" group, no sputum being available in 166. Apart from the very small group of children suffering from pulmonary tuberculosis of the adult type, the examination of the sputum is rarely possible and still more rarely helpful. The classification designed by the Ministry of Health applies to persons of all ages, though it is based upon evidence that can be obtained (with the exception noted above) only in the case of adults. The returns for pulmonary tuberculosis in children are therefore valueless.

Dr. Dixon supplies a brief report on the work of the Birmingham sanatoriums from which 1748 patients of both sexes and all ages were discharged in 1926. The average duration of stay for males was (as noted above) 61·4 days, for females 90, and for children 148. It is evident from these figures that, as a rule, the duration of treatment is strictly limited, and whilst it is true that a short period at a sanatorium is sometimes useful for educational purposes, it is equally clear that a brief period of improvement, followed by a recrudescence of disease on discharge, often leads to cruel disappointment, besides wasting public funds. Sanatoriums for adults should be reserved for patients whose social circumstances and clinical condition suggest that arrest of the disease is probable, and most of the patients on the registers of the tuberculosis dispensaries throughout the country can obtain only temporary benefit at a sanatorium. On the other hand, hospitals for the segregation of advanced cases are invaluable and more beds for these patients are urgently needed if the health of the next generation is to be safeguarded. In a great many cases, again, money would be better spent on providing home treatment, with financial assistance, than on admitting patients to sanatoriums for brief periods under tuberculosis schemes.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

THE following are some of the 1926 statistics of nine counties:—

Name of district and estimated mid-year population.	Birth-rate.	Death-rates per 1000 of the population.					Death-rates per 1000 births.		
		All causes.	Tuberculosis.	Cancer.	Respiratory diseases with influenza.	Heart disease.	Diarrhœa, &c., under 2 years.	Infant mortality.	Maternal mortality from childbirth.
Derbyshire (615,800) ..	19·2	10·6	0·76	1·15	1·7	1·3	5·7	71	4·6
Hampshire (409,500) ..	17·3	10·9	0·70	1·43	1·4	1·9	5·4	53	3·0
East Sussex (264,400) ..	13·5	11·4	0·75	1·61	1·4	2·1	3·4	42	3·1
East Suffolk (208,320) ..	16·2	11·9	0·69	1·54	1·9	1·6	2·6	68	3·5
Fife .. (110,98z) ..	22·3	10·7	0·64	1·22	1·4	1·2	5·2	72	4·4
Isle of Ely (77,070) ..	20·0	11·5	0·70	1·63	1·2	1·2	7·1	60	2·6
Breconshire (61,380) ..	18·0	11·7	0·86	1·11	2·1	1·8	4·5	64	5·4
Soke of Peterborough (49,060)	16·0	13·0	0·53	2·02	1·6*	2·1	8·9	49	5·0
Roxburgh (19,679) ..	15·0	13·5	0·86	1·47	1·8	2·5	6·8	68	10·1

* Excluding "other respiratory diseases."

Derbyshire.

Dr. W. M. Ash reports that an additional maternity home has been erected by the county council at

Ashbourne. It contains a public six-bed ward, three private single-bed wards, a labour ward, and an isolation room entered directly from the terrace. A plan of the building is given. To meet the puerperal fever regulations, it is considered that institutional treatment will be preferable to the provision of nurses for domiciliary treatment and arrangements are being made accordingly. Dr. Ash has much to say about the centrifugal movement of the population and the consequent need for country planning. Chains of houses and factories spring up along main roads and rivers and streams have to take their sewage and trade wastes. Scientific sewage purification has not been able to keep pace with this movement, and legislative action is urgently needed to prevent the beauty of the country being destroyed. Many clean milk competitions are being arranged in the county by the agricultural organiser, the awards being based on sediment tests and bacterial counts. A meeting of all the sanitary inspectors in the county was held to discuss the Milk and Dairies Order of 1926, and is expected to give valuable results in securing uniformity of standards and procedure. The following work was done under the Milk Act and Order: animals slaughtered 749, of which 678 had advanced tuberculosis, 65 had tuberculosis not advanced, and 6 were not tuberculous. During the year 372 milk samples were examined for tubercle, and 41, or 11 per cent., gave a positive result.

Bretby Hall orthopædic hospital was opened in April for 50 cases of bone and joint tuberculosis in children, and an arrangement has been made with the education committee for the reception of 50 more children suffering from crippling defects of non-tuberculous origin. The conveyance of children to and from the orthopædic clinics is a difficulty, and Dr. Ash makes an appeal to those who have motor-cars and leisure to lend a hand. There is seldom more than one child in a village in need of such assistance. The notification of tuberculosis, although better than it was, is still very badly carried out. The school report shows that out of 27,048 children examined 5475 were referred for the treatment of ear, nose, and throat defects, and 1476 were operated on for tonsils and adenoids. Two satisfactory features are noted—first, that there is a marked decrease in the number of children suffering from otitis media; and, second, that an increasing number of children below the school age are brought up for treatment.

The investigation of goitre still goes on and confirms Dr. Ash in his view that lack of iodine is not the cause of goitre in Derbyshire, that it is impossible at present to prove the presence of iodine starvation in the population, and that the indiscriminate use of iodine is dangerous. The available evidence in this county, he says, goes to show that goitre has some relation to the water-supplies, and that it is more prevalent among the population supplied with water from the limestone than in those supplied with water from the millstone grit. The investigation and experiments in Derbyshire have the advantage of being carried out by one observer, Dr. Philip Turton, so that in the classification of degrees of goitre the fallacy caused by the personal factor is eliminated.

Hampshire.

Dr. R. A. Lyster says the county council is the authority for the notification of births throughout Hampshire, with the exception of Winchester and Aldershot, and that the notification is well carried out. Only 1 per cent. of the births were unnotified during 1926, and every mother receives, in response, a pamphlet on the care of children. The county council have made an arrangement with the Winchester Maternity Society to acquire adjoining premises and fit out a maternity home with eight beds for the exclusive use of county council patients. The home was opened in March and 74 cases were admitted during the year. The Royal Hants Hospital admits abnormal cases for the council, and an antenatal clinic is held there twice a month to determine whether applicants are suitable for the hospital c for the maternity home. The county council als take four beds at the Mothers' Hostel, Epsom, at cost of £60 per bed, to which women are admitte with their babies, to be trained for domestic servic It is easy to secure suitable situations for the mother but not always easy to arrange about the bab In some cases the county council make hostel gran of 10*s.* per week for the maintenance of the babies the hostel when the mothers have secured wor Infant welfare centres have increased in numb steadily year by year. In 1917 there were 11, ar now there are 85. All of them are voluntary wi county council officers to form the nucleus of t staff. There are some 550 voluntary workers, ar it would be easy to obtain more for new centres the county council could furnish the nucleus sta The annual grant paid by the county council to the centres is only £600. In view of the puerpe pyrexia regulations, institutional treatment, path logical examinations at the county laboratories, a the services of the health visitors, who are all train nurses, have been made available, and the questi of a consulting obstetrician is under consideration.

The scheme under which expectant mothers w engage a midwife and desire to insure against the ne for having to call in a doctor is working satisfactori and is generally welcomed by the medical men the county. The tendency is for medical servic to be called in more frequently for the insured patien but the rough figures available up to now do r indicate much difference in cost to the county coun of insured and uninsured cases. About 45 per ce of the confinements attended by midwives w those of insured patients. The extension of the m wifery service through the county nursing associati proceeds more slowly than heretofore because t areas not provided for are comparatively isolat or in the nature of islands between the districts f existing nursing associations.

East Sussex.

Dr. A. G. R. Foulerton reports operations carr out under the Milk Acts and Tuberculosis Ord The county council have, as yet, only had mi herds inspected when there was an outside compla of tuberculous milk. From Sept 1st, 1925, April 30th, 1927, there were 19 such complai As a result 22 farms were inspected, 680 cows w examined, 68 had their milk specially tested, a ultimately 10 cows were shown to be giving tuber lous milk. Including these 10, 809 tuberculous c have been notified to the police under the Tubercul Order during the first 20 months of its operati Of these 795 were found to be tuberculous, 136 which had lesions of the udder. The number milch cows in the administrative county is 32,0 Dr. Foulerton suggests that 785 of these cows w notified to the police by the owners "either beca the cow was seriously emaciated or because it sho other obvious signs of disease, suggestive of tu culosis—in other words, because the cow was in s an advanced condition of tuberculous infection would render its milk seriously dangerous." At same time he appears to be desirous of showing t the introduction of the Order has been a gain f the public health point of view. The report, howe does not produce any evidence that the "advance cows were notified to the police at an earlier st of the disease than that at which they would h been sent to the knacker in pre-compensation day

Under the council scheme for maternity c 54 women were admitted to the Women's Hosp at Brighton, one to Crowborough Cottage Hospi and two to Tunbridge Wells Maternity Home. the 57 cases, 15 were admitted as labour emergenc 30 because antenatal observation had detec abnormalities, and 12 on account of unfavour home conditions. Considerable improvements h been effected at Darvell Hall Sanatorium, used joi by the county and the Borough of Hastings, and available beds have been increased from 75 to 93.

East Suffolk.

Dr. Bernard Wood-White reports the reunion of e public health and school medical services after separation of some six years, and that the health mmittee have accepted as a far-off ideal a scheme r a combined medical service similar to that in eration in a considerable part of the neighbouring unty of Essex. Dr. Wood-White shows how the unty could readily be divided into six areas, each th a population of about 30,000, in which one medical icer would act for the rural and urban district uncils and also as assistant county medical officer health. A serious pollution of the river Gipping s been caused by the waste from a large artificial k factory recently established at Stowmarket. e pollution is chiefly due to sulphur and sulphur mpounds and causes a strong smell of sulphuretted drogen. Steps taken by the company had caused ne improvement, but the trouble had not been noved at the close of the year. Dr. Wood-White es not seem very hopeful about the benefit likely be gained from the Housing (Rural Workers) Act, 26.

Up to 1926 there were no dairy farms in the county plying "designated" milks, but during the year ree owners have been licensed for Grade A milk. ree complaints of tuberculous milk were received m Lowestoft, but in no case was the veterinary pector successful in finding an offending cow. regards the production of cleaner milk, the con- vative attitude of the agricultural labourer is a iculty, and to cope with it Dr. Wood-White nks the sanitary inspectors should undergo a rse of instruction at an agricultural college the production of clean milk. Dr. Wood-White nks "the Tuberculosis Order cannot be called an questionable success and that numbers of definitely ercular cattle are not brought to the notice of veterinary surgeon." The number of cows ughtered under the Order during the year, for st and West Suffolk, was only 95; 7 of these fered from tuberculosis of the udder, 2 were giving k containing tubercle bacilli, 47 had tuberculous aciation, and 38 other tuberculous conditions. e cows slaughtered included all bovines and more n half were milch cows. There are in East Suffolk ne about 25,000 dairy cows. An outbreak of te infantile paralysis occurred in the small age of Dennington, with 15 cases and 4 deaths. e first case occurred in August, and most of the es in October. There seemed to be distinct dence of case-to-case infection. Notes of each of the ases are included in the report. The negotiations ut the establishment of a venereal diseases centre Lowestoft Hospital have reached a deadlock. sing associations have increased in number since l from 36 to 57, and now cover about two-thirds the county. Their nurses act as the agents of county council for the purposes of midwifery, ernity nursing, health visiting, and tuberculosis iting. The county council subsidises these associa- ns to the extent of £1900 a year, and in order to er the whole county an additional sum of at least 00 will be necessary. On account of financial gency the extension of the scheme is held up.

Fife.

r. G. Pratt Yule reports that of the four districts fermline and Kirkcaldy were affected by the strike. The district committees undertook feeding of expectant and nursing mothers and dren under 5 from May 1st, and spent over 1,000, as compared with an expenditure on this l of £144 for the months January to April. After most of this relief work was handed over to the sh councils. The health nurses in both districts rted that the families were well looked after and the children were better fed than in normal es, chiefly owing to their much larger allowance milk. One "bona fide" midwife was removed n the roll for failure to call in medical assistance a case of puerperal sepsis. During the last three quinquennia the deaths from puerperal sepsis have averaged 18, 14, and 12 respectively, and the deaths from other accidents of pregnancy 44, 75, and 51. Dr. Yule thinks the cases under the latter heading would often come more appropriately under the former. A small ward in the Kirkcaldy isolation hospital has been set aside for the treatment of puerperal sepsis. Insulin, ordered through the Board of Health, at a cost of 2*s.* per 100 units, is supplied to necessitous diabetic patients. Two males and eight females were so supplied during the year and one female was granted 10*s.* per week towards the cost of her special dietary. Houses are needed in the Cupar and St. Andrews districts, but the district committees have not so far provided any. In the Dunfermline district the need for houses continues in some mining areas, but may be modified as a result of the depression in the coal trade. With the approval of the local health authorities of the county a whole-time veterinary surgeon has been appointed for the purposes of the Milk Act. Steps are being taken to prevent the pollution of the river Eden by a beet sugar factory. At present the waste runs to a settlement pond of three acres, but the capacity of the factory is likely to be doubled, and continued watchfulness will be necessary.

Isle of Ely.

Dr. J. Pixton Walker describes among the special features of the year the better housing of his staff in the County Hall, the extension of mental deficiency work through a new voluntary association, and the fusion of the rural and urban districts of Whittlesey. Dr. Walker thinks the cutting down of the issue of cod-liver oil by tuberculosis dispensaries is a costly economy. The rivers Ouse and Lark are polluted by beet sugar factories at Ely and Bury St. Edmunds. Suggestions have been made to prevent the pollution at Ely by the provision of more baffles in the settling ponds and by the treatment of the effluent. In the Whittlesey urban district "44 householders draw their water from condemned wells and 27 draw their water from the Briggate river, where the town sewer discharges into the river." A case of midwifery attendance by an unqualified male practitioner was discovered in the Ely rural district a few days before the new Act came into force. In North Witchford R.D. a cow died on the roadway and the carcass was cut up and sold for human meat. Prosecution was successfuly undertaken for the technical offence of failing to give notice of slaughtering, and at the trial it was held that "slaughtering" did not end with the death of the animal, but included the preparation of the meat for human consumption.

Breconshire.

Dr. Herbert Davies reports that the nurses of the local district nursing associations perform the duties of midwife, school nurse, and health visitor. Midwives attended 957 live births and 56 stillbirths. The proportion of stillbirths to live births in the county was 5·7, which is unusually high. The treatment of tuberculosis is carried out by the Welsh Memorial Association, and a county council committee meets quarterly to consider the housing conditions of each person notified. Cases of overcrowding are reported to the local sanitary authorities with a view to securing the better housing of the patients.

Soke of Peterborough.

Dr. Christopher Rolleston gives in his report a full scheme for the working of the Housing (Rural Workers) Act of 1926, but his health committee have decided not to adopt it. Dr. Rolleston thinks the Act, if wisely administered, would confer untold benefits upon the countryside, and points out that the counties bordering on the Soke have already adopted it. Dr. Rolleston urges the advisability of the establishment of antenatal centres at Peterborough and Stamford. The county council has made arrangements with Stamford Infirmary for the reception of cases of difficult labour and of

puerperal fever for the two rural areas, but the council of the City of Peterborough, the one urban area, has "decided not to ask the Minister of Health at present to allow them to have power to have bacteriological examinations, hospital treatment, or trained nurses." Fifty-eight per cent. of the infant deaths in the county were due to congenital debility, and three infants received orthopædic treatment, suffering respectively from spinal curvature, club-foot, and spastic hemiplegia. Dr. Rolleston emphasises the difficulty of the agricultural labourer in securing dental treatment for the most important member of the home—the mother. Dr. Rolleston's work in his small county is largely clinical, and he gives the notes of cases of pulmonary tuberculosis treated by him by means of artificial pneumothorax. The cases number 28 and have been dealt with during the last ten years. Seven are in full work, three more in excellent health, including one woman who has gone through pregnancy; six are able to do some work, one in spite of the complication of heart disease; five others are in very fair health, including one who has successfully recovered from an operation for stone in the kidney; two are making satisfactory progress; one is doing badly; and four are dead. All the cases were advanced ones and many have lost the tubercle bacilli in their sputum under treatment.

Roxburgh.

Dr. M. J. Oliver says the occurrence of a false alarm of small-pox demonstrated the utter unsuitability of the wooden structure, scantily provided with furniture, bedding, and utensils, and unused for many years, for the receipt of patients. The country children had to be excluded from the high school at Hawick for the later months of the year owing to the prevalence of scarlet fever, and an outbreak of this disease, with 23 cases in different districts, was caused by a family who did not get medical advice for the original case. Dr. Oliver is not satisfied that our education system is doing anything to train up mothers who will require less supervision than the present generation. Maternal efficiency, he says, is more important for the health of the young than such conditions as poverty, underfeeding, or overcrowding. The education of good mothers is in the hands of the education authorities, while the sanitary authorities have to deal with conditions due to bad mothers. Newstead Hospital, serving the Jedburgh and Melrose districts, has been greatly improved during the year. The Kelso Hospital needs a motor ambulance. The services of the aural surgeon have been found invaluable. Dr. Oliver says everyone interested in dairy work and meat inspection understands the importance of obtaining the services of independent whole-time veterinary inspectors, and that the county council had practically succeeded in attaining this object by getting all the health authorities in a wide area to combine. Unfortunately, when it became known that the Board of Health had agreed to the appointment of part-time inspectors in Perthshire, one after another the authorities dropped out of the combine and the county council has had to fall back on part-time inspectors for each of its five districts. The farms only number some 70 to 80 and the milch cows in four districts (excluding Liddesdale) number under 1000. An attempt is being made to secure some uniformity by means of a subcommittee of the county council. The new by-laws have been approved and "imply a revolution in dairy work," and much patient work will be required to bring them into operation. The county sanitary inspector's description of the conflict between the "Uppies" and the "Doonies" in Ancrum village illustrates the difficulty of parish sanitary administration. The "Uppies" lose their water-supply when the service tank is low and favour an improved scheme and also a scavenging system. The "Doonies" have continuous water-supply without carrying it and tip their refuse over the river bank, and therefore care for neither of the things desired by the "Uppies."

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED OCT. 29TH, 1927.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 19 (last week 200); scarlet fever, 2690; diphtheria, 1417; enteric fever, 74; pneumonia, 1112; puerperal fever, 3; puerperal pyrexia, 113; cerebro-spinal fever, 7; acute poliomyelitis, 25; acute polio-encephalitis, 3; encephalitis lethargica, 27; dysentery, 8; ophthalmia neonatorum, 91. There was no case of cholera, plague or typhus fever notified during the week.

Deaths.—In the aggregate of great towns, including London, there was no death from small-pox, 3 (1) from enteric fever, 25 (2) from measles, 4 (0) from scarlet fever, 6 (0) from whooping-cough, 41 (13) from diphtheria, 66 (9) from diarrhœa and enteritis under two years, and 64 (11) from influenza. The figures in parentheses are those for London itself. The number of stillbirths registered during the week was 238 in the great towns, including 44 in London.

The Services.

HONORARY SURGEONS TO THE KING.

Colonel Thomas Kay, D.S.O., T.D., Assistant Director of Medical Services, 52nd (Lowland) Division, Territorial Army (vice Colonel F. H. Westmacott, C.B.E., T.D.), and Colonel Reginald Ernest Bickerton, D.S.O., T.D., Assistant Director of Medical Services, 56th (1st London) Division, Territorial Army (vice Colonel A. D. Sharp, C.B., C.M.G., T.D.), have been appointed honorary surgeons to the King.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Lt.-Comdr. A. G. McKee is promoted to the rank of Surg.-Comdr.

ROYAL ARMY MEDICAL CORPS.

Capts. to be Majs.: W. H. A. D. Sutton (Prov.) and R. S. Dickie.

Lt. (on prob.) E. W. Hayward, from the secd. list, is restd. to the estabt.

Lts. (on prob.) W. F. Lane and T. F. M. Woods are seen under the provisions of Art. 205, Royal Warrant for Pay and Promotion, 1926.

T. F. M. Woods to be Lt. on prob.

ARMY DENTAL CORPS.

Capt. E. D. Batty resigns his commn. and retains the rank of Capt.

TERRITORIAL ARMY.

Capt. K. Simpson resigns his commn.

Lt. H. A. Eadie to be Capt.

Lt. R. E. Davie, late Cameronians, to be Lt.

INDIAN MEDICAL SERVICE.

Lt. J. F. Shepherd to be Capt.

Temp. Lt. Syed Mahmood Ali Khan to be Temp. Capt.

Lakshman Dass, Trilok Chand Puri, Sher Mohmed Khan, Mallick, Rewati Raman Bakhshi, Chandra Mani, Amar Singh Arora, Yadu Nandan Lal, Aziz Ahmed, and Keshao Balwantrao Gore to be Temp. Lts.

ROYAL ARMY MEDICAL CORPS EXAMINATION.

The next examination for commissions in the Royal Army Medical Corps will be held in January next. Application by intending candidates should be made to the Under-Secretary of State (A.M.D.1), the War Office, Whitehall, London, S.W. 1.

NAVAL NURSING SERVICE.

The medical members of the Consultative Board which has been formed to advise on matters concerning Queen Alexandra's Royal Naval Nursing Service, and of which the Queen is President, are: chairman, Surgeon Vice-Admiral A. Gaskell, Medical Director-General of the Navy; deputy chairman, Surgeon Captain R. W. B. Hall, Deputy Medical Director-General; and Surgeon Commander F. Lyvis Smith, an assistant to the Medical Director-General.

DIPHTHERIA AT CATERHAM BARRACKS.

We understand that it has been decided to close Caterham Barracks for three months on account of diphtheria. At present the cause of the outbreak cannot be traced and there seem to be only a few cases.

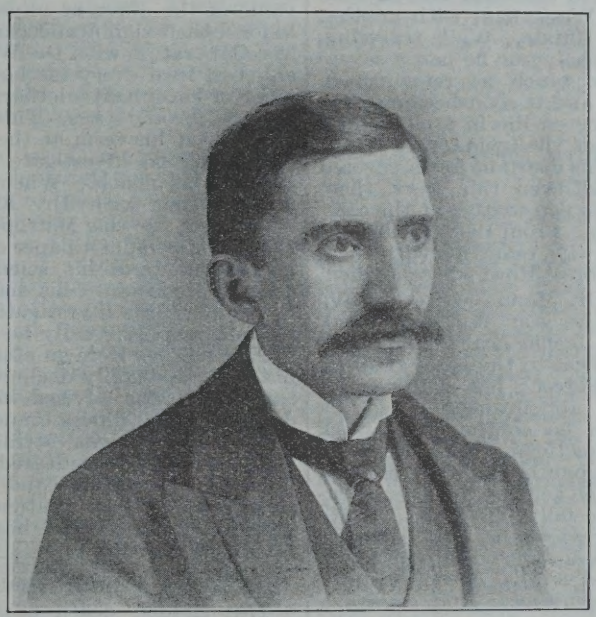
Obituary.

HENRY PATRICK CHOLMELEY, M.A., M.D.OXF.,

LATE ASSISTANT EDITOR OF "THE LANCET."

WE deeply regret to announce the death of Henry Patrick Cholmeley, which occurred on Sunday, Oct. 30th, at Forest Edge, Forest Row, after a brief final illness, at the age of 68. To many contributors of THE LANCET he was well known personally on account of his long service here on the editorial staff, while all our readers will have obtained information and pleasure from the varied and learned nature of his contributions during the past 30 years.

Henry Patrick Cholmeley was the only child of Mr. Henry Cholmeley, an officer in the H.E.I.C., by his wife, the daughter of Mr. J. Cumin, of Bath, and sister of the late Sir Patrick Cumin, of the Education Office. He was born in 1859 in Rangoon, and when he was an infant of 8 months lost his father, who was attached to a special mission in Burma as M.O. His mother, quite a young widow, returned to her father's house and lived there with her child for nine years. On his going to a preparatory school—Mr. Waterfield's well-known establishment at East Sheen—she took a house in the neighbourhood, and when he went on to Eton, to Mr. Warre Cornish's house, she again went to live near him. At Eton he rose to a high place in the school, and acquired a love of the classics which he never lost, retaining throughout his life a familiarity with both Greek and Latin literature which, to-day at any rate, is quite unusual. He proceeded to Magdalen College, Oxford, and having decided to follow his father's profession graduated in arts and medicine, completing his medical training at St. Bartholomew's Hospital.



DR. H. P. CHOLMELEY.

He entered the medical school in 1882 and took the M.R.C.S. Eng. in 1886, graduating in medicine at Oxford in the same year. His medical teaching was largely received from Dr. James Andrew, from whom he derived his sound clinical insight and for whom he always maintained a high regard. He acted as house surgeon to Mr. Alfred Willett, and then for three months assisted Dr. Lewis Jones in the foundation of the first electrical department in the hospital. Always a strong Churchman and profoundly interested in Church history, he went at this period, to his great pleasure, on Archbishop Benson's preliminary mission to the Assyrian Church with Mr. Athelst n Riley, but here he suffered a severe breakdown, contracting haemoglobinuria in Persia. On restoration to health and return to England, he was for various periods M.O. to the Victoria Hospital for Children and the Kensington Dispensary, and for some time performed the duties of medical registrar at the North-West London Hospital.

On the expiration of these appointments he set up housekeeping with his mother, and went into general practice in Onslow-crescent, South Kensington. They will be remembered by many as delightful host and hostess, who kept their positions towards each other, and towards the friends of each other, with perfect affection, and yet with independence. The son's deference was always there through frequent arguments, and the mother's realisation of the son's learning never stopped a firm and humorous output of her own views. They made a common study of many books, and had a common delight in good music, and lived on terms of love and intimacy that words cannot exaggerate. But the experiment in general practice was never a success. Cholmeley was shy in manner, dry in speech, fine in sentiment, and impatient of patronage. His poorer patients and all in serious plight of any sort had his devoted service, and these were always able to detect beneath his reserve the deep sympathy with them and the willingness to spare no effort. But for the routine of medical practice he had little aptitude, and to patients whose cases presented no points of pathological or therapeutic interest he never seemed a sufficiently serious adviser. He was impatient of fussiness and selfishness, and, though the kindest of men, he grudged expenditure of time in the rôle of mere comforter, and was no expert in concealing his feelings. So after less than ten years in practice he retired, and joined the staff of THE LANCET in 1896, being shortly afterwards appointed assistant editor, in collaboration with the present editor. Our illustration depicts him as he was at this date.

At THE LANCET his work, both within and without the office, was untiring and of a very varied nature. For the duties of a sub-editor he had a great distaste and, indeed, he was quite unfitted for them. There soon became no question of expecting him to prepare contributions for the press in any orderly way, or to conform closely to any official pattern. But he was a first-class judge of literature, general and medical, and in both fields his range of reading had been catholic, while his power of recalling what he had read and where he had read it was remarkable, especially as his references were drawn from such varied sources. Not a facile writer, his leading articles and editorial communications were produced with difficulty, and seldom gave satisfaction to his fastidiousness, but his accuracy was unfailing, his approach to a subject was logical, and the ideals that he put forward were always lofty yet never priggish. As a reviewer he was generous to all writers save the pretentious, and those who simulated a scholarship or culture which they did not possess. Many of his notices of books took the form of little essays on the subject matter, in which he would give reasons for his judgments, a procedure which would sometimes lead to letters from the writers to their unknown critic, seeking further information. This would usually occur when the work was one of medical history, in which he was deeply read, as his own contribution to this branch of study shows. For Cholmeley's work, "John of Gaddesden," is a model of what contributions to the long story of healing should be. His views were similar to those so profusely supported in the "Golden Bough," for he held that many popular ideas are survivals of ancient pathology which have taken longer to die out among the public than among members of the medical profession, but in which the foreshadowing of later discoveries and methods can be definitely traced;

and he urged, for this reason, that the exponents of early pathology should be approached with real respect, pointing out that, in the light of new facts discovered and of new principles formulated, the fancy of the past may become fact of the present. In this spirit he wrote the life of John of Gaddesden, the first English court physician, who flourished at the end of the thirteenth century, and who compiled the Rosa Medicinæ from Greek, European, and Jewish sources, illustrating the learning of his predecessors by personal observations drawn from extensive practice. The book illustrates the general scientific equipment of a physician of those far-off days, with its reliance upon superstitions, and none the less upon clinical observations, and justified Cholmeley's thesis that the empirical statements were not necessarily false because they were formerly saddled with an explanation later seen to be erroneous.

After the death of his mother in 1903, Cholmeley lived for a time in Portland-place with his great friend, Gustave Schorstein, but Schorstein, it will be remembered, fell a sudden victim to diabetes, and in 1908 Cholmeley went to live at Westerham with another intimate friend, Dr. Arthur Maude. While travelling in Italy with Dr. Maude in that year he had a severe attack of pneumonia, after which he remained in exceedingly delicate health, and it soon became clear that he could no longer carry on life in a city office. So to our great regret he left the inside staff of the paper, though to the day of his death he never severed his connexion with us, and even this week there appear contributions from his pen written at the commencement of his fatal illness. From 1908 onwards he lived with Dr. Maude and his wife, removing with them in 1914 from Westerham to Forest Row, where he died.

Of their life in Sussex Dr. Maude writes: "We moved to Forest Row in the year of the outbreak of war, and in spite of his feeble health Cholmeley acted as civilian medical officer to the large artillery training camp on Ashdown Forest; but at the end of six months he found this appointment taxed his strength too much, though he continued to work steadily in multifarious directions where he could fill the gaps left by those gone on military service. Though all his time with us he kept up his fine knowledge of the classics, especially of Virgil, wrote occasional articles, mostly reviews for THE LANCET, and read omnivorously. He interested himself much in gardening, and developed a love of flowers into a sound knowledge of horticulture. And always a keen Churchman, he took an active part in the ecclesiastical matters of the neighbourhood, where his real acquaintance with Church history, music, and Christian art in all countries, gave his opinions and counsel just value. His death will be keenly felt by many in Forest Row, where his piety, learning, and gentle charm of character were widely appreciated."

Cholmeley always described himself as a happy man, and the sources of this happiness lay in his own fine character. Much learning left him modest, a truly charitable nature freed him from all bitternesses, he had no jealousies, and his trained mental qualities gave him the power to enjoy beauty in all forms. To his colleagues at THE LANCET, in every department, his death has been a real source of grief.

S. S. S.

ERIC WEMYSS FULTON, M.B., CH.B. ABERD.

WE regret to announce the death of Dr. Eric Wemyss Fulton, which occurred from lobar pneumonia at the early age of 27. In him neurology has lost a brilliant young exponent.

Eric George Alexander Wemyss Fulton was the son of Dr. Thomas Wemyss Fulton, the superintendent of scientific investigations on the Fishery Board of Scotland. He was born in Aberdeen and educated at the Aberdeen Grammar School. Proceeding as a medical student to the University, he graduated as M.B., Ch.B. in 1924, and from the beginning of his career as a qualified man was drawn to the study of neurology. After filling certain resident appointments he came to London as clinical assistant at the West End Hospital for Nervous Diseases, and at that hospital was successively house physician, resident medical officer, and in-patient registrar. At the time of his death he still retained connexion with the institution, for he was doing honorary work as clinical assistant in the out-patient department and was following up various groups of cases. In the meantime he had been appointed resident medical officer in charge of the post-encephalitis lethargica unit at the Northern Hospital of the Metropolitan Asylums Board (Winchmore Hill) under the Ministry of Health. Here he devoted himself with great zeal to the study of the problems involved in cases of this disease which present to-day so much difficulty both in diagnosis and prognosis. Some of his observations and their results have been embodied in the reports of the Metropolitan Asylums Board, though much of his work still remains unpublished. The same may be said of his work at the West End Hospital, where he was engaged upon a series of researches into the comparative diagnostic value of the different physical signs of upper neurone lesions, their significance, and explanation. Here also in collaboration with Dr. Worster-Drought, he investigated in turn every method advocated for the treatment of encephalitis lethargica both during the acute and the chronic stage. This work extended practically throughout his term at the hospital, and he was still continuing to investigate the later methods at the time of his death. When he was taken ill he was collaborating with Dr. Kinnier Wilson, consulting neurologist to the Metropolitan Asylums Board, in the preparation of a paper on clinical post-encephalitic phenomena, and his scientific keenness may have actually determined his death, for so insistent was he to complete his investigations that he did not cease working until virtually he collapsed. Only last year he had suffered from an attack of broncho-pneumonia but he had steadily declined at that time to take the rest which was advised him by his doctor, and no doubt his final illness found him a ready victim.

Eric Fulton was attractive both in mind and manner. He had endeared himself to all with whom he came in contact, and his death will be deeply regretted by both patients and colleagues alike. Certainly if his life had been spared a great scientific future lay before him.

ROBERT LOWIS ROUTLEDGE, M.B. DURH.

THE sudden death of Dr. R. L. Routledge, of Haydon Bridge, as the result of a motor-cycle accident while on his rounds, adds another to the list of tragedies whereby medical men have lost their lives in the pursuit of their avocation. Born at Rookhope in Weardale 53 years ago, he studied medicine at the Newcastle School and graduated as M.B., B.S. at the University of Durham in 1899. For a time he acted as one of the medical officers of the Newcastle Dispensary, and afterwards assisted Dr. Gray, of Stanhope. About 23 years ago he went to Haydon Bridge where he took over the practice of the late Dr. Callender. Dr. Routledge soon became well known and highly respected in South Tynedale for his practice comprised a scattered agricultural district. He was medical officer for the district and took a great interest in everything which concerned its welfare. A strong supporter of outside sports he was actively associated with the Haydon Bridge cricket club. At the outbreak of the late war he joined the 4th Battalion Northumberland Fusiliers (Territorials), and served throughout the period of hostilities. Afterwards he took a great interest in the local branch of the British Legion. A colleague writes of him:—

"Routledge was always cheery and optimistic, but unassuming and very human, content to minister to his patients and to find recreation in his own home circle and in promoting the welfare of his own village. He will be greatly missed and mourned far and wide, and not least in many a lonely homestead, for he was kindness itself to the poorer patients."

He leaves a widow and one son, who is studying for his father's profession.

Correspondence.

"Audi alteram partem."

THE USE AND MISUSE OF DENTAL SKIAGRAMS.

To the Editor of THE LANCET.

SIR,—Dr. Badcock's letter in your issue of Oct. 22nd ises a question of the utmost importance to both edical and dental practitioners. Very few would isagree with the statements he makes, but the issue much wider, I believe, than the interpretation of ental radiograms. The relationship between the octor and the dentist certainly could be improved. greater knowledge of dental pathology would ppear to be the solution for all practitioners. The entist cannot know a special form of pathology ithout being more widely acquainted than at present ith the general principles of the subject. The medical ractitioner has little opportunity of acquiring nowledge of dental diseases. The curriculum for ny examination does not demand such knowledge, nd, if demanded, hardly any examiner under the resent arrangements is capable of conducting such n examination.

The number of medical students attending the ntal departments of the hospitals for information, yond that of extraction of teeth, is remarkably w. In fact for the most part, medical men know thing of dental diseases or their pathology. The mmonest interpretation is that discoloration nstitutes disease; frequently have I known a tooth ained black by the application of nitrate of silver be regarded as the worst tooth in the mouth. ese remarks may be thought too severe, but I would t have them so interpreted, for until recent years ly the few have regarded pathological changes nnected with the teeth as of great importance.

What seems to have happened is that the medical actitioner, possessing in radiograms his only form information upon dental conditions, has credited em with an excessive value, whilst the dentist th a limited knowledge of pathology has done the me. Stereoscopic radiograms, when obtainable, e of greater value than simple films or plates, but ch is obtained through such a thickness of bone at unless a marked change has resulted, little formation can be derived.

In the future some knowledge of dental conditions ust be acquired by all medical men. The real ue, therefore, is educational. Can the curriculum extended? I feel sure the time will come when all ecial departments will have to be attended and a parate examination conducted upon the elementary nciples of each of these special subjects.

I am, Sir, yours faithfully,

W. WARWICK JAMES.

Park-crescent, W., Nov. 1st, 1927.

HIRSCHSPRUNG'S DISEASE IN ADULTS.

LIVER DIET IN ADDISON'S ANÆMIA.

To the Editor of THE LANCET.

SIR,—In your issue of Oct. 29th Dr. S. Harold okson described an interesting case of Hirsch- sprung's disease resulting from achalasia of the al sphincter in a man of 69. He states on my thority that the disease is very rare in individuals er 30 and he was unable to discover any recorded e after the age of 40. It may therefore be of erest to record the fact that since 1922 we have had der observation five males, aged respectively 9, 41, 61, and 42, and two females, aged 34 and 50, h typical radiological and sigmoidoscopic signs of gacolon (so-called Hirschsprung's disease) secondary achalasia of the anal or pelvi-rectal sphincter. ne of the cases required operation.

Our experience of the treatment of Addison's anæmia by liver diet fully confirms that of Dr. J. H. Anderson, and Dr. E. I. Spriggs reported in your issue of Nov. 5th. We first tried it in 1925 after reading the paper by Bobscheit-Robbins and Whipple in the *American Journal of Physiology*, in which they described experiments showing the favourable effect of liver given by mouth as a stimulant to blood formation in artificial anæmia in animals. Unfortunately we gave insufficient to produce any definite results. After the appearance in August, 1926, of Minot and Murphy's first paper on the treatment of Addison's anæmia with large quantities of liver we have given this diet in about a dozen cases, in addition to the administration of hydrochloric acid and the adoption of means to overcome the oral and intestinal infection. The results have been uniformly good; two or three patients, who would probably have died under the old régime, have recovered. It may be worth adding that raw liver sandwiches can be made very palatable by the addition of anchovy paste.

Unfortunately, the liver diet appears to have no effect on the associated nervous disease—subacute combined degeneration of the spinal cord.

I am, Sir, yours faithfully,

New Lodge Clinic, Windsor Forest, Nov. 7th, 1927. ARTHUR F. HURST.

PAYMENT TO HOSPITALS FOR MOTOR ACCIDENTS.

To the Editor of THE LANCET.

SIR,—The reply of Mr. P. T. Carill-Worsley, vice-chairman of the Norfolk and Norwich Hospital, will be read with great interest. From it is to be gathered that the statement in the report printed on p. 892 of your issue for Oct. 22nd was incorrect when it said "a private practitioner . . . could send his bill to an insurance company" for attendance on a motor accident victim and that consequently, by putting these persons in private wards, the hospital authorities could do the same.

There is no analogy between a voluntary hospital and a private practitioner. The former is a charitable institution and the latter is not. The former, in making any claim on a victim, would have to prove that a contract existed; in the case of the latter it is always inferred. What one understands to be the present position is that a voluntary hospital, *being a charitable institution*, cannot uphold any claim on a victim directly or indirectly for services rendered, unless that victim makes request, verbally or in writing, in advance, to be admitted either as a paying patient in the ordinary wards or to the private wards or buildings, and that placing him in the private wards rather than in the public wards without any such request expressed previously, will not reduce the expenses, but rather increase them, besides using up a much more limited space. If this is so, the only apparent way to alter the situation would seem to be to obtain legislation. May not the insurance companies say, when asked to pay for private ward treatment, that voluntary funds are intended for accidents and emergencies, and if they are not sufficient they should be increased; and if you have been placed in a private ward, and the hospital has thereby incurred expenses of an increased nature, that is not our concern?

The Norfolk and Norwich Hospital authorities propose to adopt the practice of placing victims—one concludes in all ranks of society—in private wards in order thereby to appeal to the generous instincts of insurance companies, which, after all, are business concerns. Would it not be as well, before this line of action becomes general, to ask the Hospital Association to state a case for counsel's opinion, whilst, at the same time, approaching the body representative of insurance companies in order to discover whether they would consider favourably the proposed procedure?

I am, Sir, yours faithfully,

Hove, Nov. 8th, 1927. E. ROWLAND FOTHERGILL.

MORBUS MACULOSUS NEONATORUM.

To the Editor of THE LANCET.

SIR,—The ætiology of this disease is obscure. It does not, as far as I know, appear in epidemic form; nor can I find any record of its appearance in association with a hæmorrhagic type of a specific infectious disease. On that account the following experience in my practice may be worth recording. On April 18th, 1927, I delivered a primipara of a healthy female child, the labour being normal and short. On the 21st the child developed morbus maculosus, and died next day in convulsions. On August 8th I attended, in the same house, a sister, aged 12 years, of this woman. She was suffering from severe hæmorrhagic diphtheria, and, in spite of immediate treatment at home and in hospital, died a few days later. There seems to me to be a possible relation between these two cases.

I am, Sir, yours faithfully,
W. MCC. MACPHERSON.

Birmingham, Nov. 8th, 1927.

INTERMITTENT CLAUDICATION: THE USE OF HEAT.

To the Editor of THE LANCET.

SIR,—The admirable paper by Dr. Wilson Gill and Dr. Newell Moss in your issue of Oct. 29th illustrates the effect of heat in widening a contracted arterial bed; and also illustrates the choice that often lies between local and general applications. For intermittent claudication I have long been accustomed to use a leg bath of hot air (180°–250° F.) with good and lasting effect.[1] Not only is the circulation in the limb greatly increased, but the body temperature often rises to 100° or 101° F., and the tissues are flushed with warmed blood. In patients with a generally subnormal temperature this may well be beneficial, as we find is the case after a course of hot baths or packs. The authors have observed that widespread or general diathermy with large plates relieves a local spastic condition. There is much to be said for both local and general applications of heat in vasomotor hypertonia, and both obviously have their uses.—I am, Sir, yours faithfully,

London, Nov. 2nd, 1927. R. FORTESCUE FOX.

SKIN GRAFTING FOR X RAY BURNS.

To the Editor of THE LANCET.

SIR,—The following will be of interest to those suffering from X ray burns and their consequences, and to those who have patients under their care from the same causes. About 20 years ago I had a large amount of X ray treatment given to me for psoriasis on the hands, with the result that about four years ago an ulcer developed, which became epitheliomatous. This was cut out in January, 1926, and an attempt to skin-graft completely failed.

In June of the same year the epithelioma returned, and was again cut out, leaving the wound to heal by cicatrisation. Again, in March of this year an epitheliomatous ulcer appeared. I had the opportunity of consulting Prof. Holzknecht, of Vienna, who himself has had many operations for X ray damages. He sent me to Dr. Gilmer, of Munich, who had operated on him four times, and to whom he considered he owed the saving of a large part of his hand. Dr. Gilmer has for 20 years studied these X ray destructions, &c., and methods of direct skin-grafting after removal of the affected tissue, however deep. I was three weeks in Munich under his care, with the result that where I had an epitheliomatous ulcer and a large, threatening scar, now I have quite good skin, which is rapidly becoming not only normal, but has entirely replaced the skin in the affected area.

I had the opportunity of seeing and hearing of many of his cases, and in some of the worst X ray burns involving large areas of skin, as well as epitheliomatous ulcers, complete cures resulted. His method is direct grafting under conduction anæsthesia and without antiseptics of any kind. his special experience and after-care of these cases are certainly most remarkable in their results. I feel it my duty to let others who are suffering from the after-effects of X ray burns, with perhaps the same hopeless outlook I had, know that there is a very real and successful method of cure.

If it would aid any medical men I will gladly show them my hand.

I am, Sir, yours faithfully,
EDWARD D. MADGE, M.R.C.S., L.R.C.P., L.S.A.

60, Brompton-square, S.W., Oct. 30th, 1927.

"SANE ENOUGH FOR SENTENCE."

To the Editor of THE LANCET.

SIR,—Under this heading in your issue of Oct. 29th you deal with the case of an inmate of the Three Counties Mental Hospital sentenced at the Bedfordshire Assizes for assaulting a member of the hospital staff and you suggest "there must be something wrong with the law when an asylum inmate is sentenced as a sane man." You then go on to say: "This and other instances raise the old disquieting doubt whether the law courts do not sometimes deliberately ignore the medical history of accused persons instead of obtaining the utmost possible information before passing sentence."

If your columns are not closed to the mere layman may I put an opposite point of view to your readers? But, first, let me state that it is now admitted by the Board of Control that the asylum inmate (whose name was Isaac Mitcham) was discharged from certificate on August 17th last, though the fact was withheld from him, was not available to counsel, and was apparently not even known to Mr. Justice Swift when he passed sentence. If there is a duty incumbent on the law courts to obtain the medical history of a case before passing sentence, surely there is a double duty incumbent on members of the medical profession to obtain adequate information before certifying. Yet in the case of Mr. Mitcham and of Mrs. De Frevil which took place within a few months of each other in the summer of 1926, any inquiry whatever would have established that within a few hours of certification they were in consultation with their solicitors on the family disputes involved in both cases. The solicitors concerned could have given indispensable evidence which in the opinion of most laymen would have rendered certification utterly impossible. More, of course, will be heard of the Mitcham case, but meanwhile it has raised in the public mind the only disquieting doubts as to whether some medical men do not deliberately ignore the previous history of their patients instead of obtaining the utmost possible information before certifying.

I am, Sir, yours faithfully,
R. MONTGOMERY PARKER,
Chairman, National Society for Lunacy Reform.

60, Avenue Chambers, Southampton-row, W.C.,
Nov. 7th, 1927.

POSITION OF THE LONDON HOSPITALS.—King Edward's Hospital Fund has just issued its annual statistical report on the income and expenditure of the 134 London hospitals which it assists. During 1926 the number of available beds increased by exactly 300, making 14,470 in all; there were 6000 more in-patients, the total number being over 200,000; and out-patients' attendances increased by nearly 300,000 to 7,455,000. The total cost of working was £3,058,000, £70,000 more than in 1925. Income increased by over half a million to £3,019,000, leaving a deficit of £39,000. Fifty-five hospitals had deficits. The average cost per occupied bed in the teaching hospitals was £234. Of the total expenditure, 19·2 per cent. was derived from investments, and 32·1 per cent. from patients' payments and other receipts on account of services rendered. Voluntary contributions, including legacies, produced 46·8 per cent.

[1] Jour. of Balneol. and Climatol., 1899, p. 220; Principles and Practice of Medical Hydrology, 1913, p. 86.

Medical News.

UNIVERSITY OF CAMBRIDGE.—The Raymond orton-Smith Prize has been awarded to Mr. V. B. Wiggles-orth, B. Chir.; proxime accessit, Mr. A. E. Roche, M. Chir.

UNIVERSITY OF LONDON.—The University Medal Branch IV. (Midwifery and Diseases of Women) of the D. Examination held in July, 1927, has been awarded to . Harold Burt-White, of St. Bartholomew's Hospital.

ROYAL COLLEGES OF PHYSICIANS OF LONDON AND RGEONS OF ENGLAND.—At the Final Examination held m Oct. 4th to 25th the following candidates were proved in the subjects indicated, but are not yet eligible diplomas:—

Medicine.—Dorothy G. Angus, Royal Free; G. D. Augenlicht, Westminster; Julia C. H. Avery, St. Mary's; Gertrude C. Banks and Ruth Bocock, Royal Free; Lilian M. C. Clopet, Cardiff; P. J. Cowin, St. Bart.'s; Pera R. C. Crawford, Royal Free; J. H. Cullinan and R. G. de Kock, Guy's; M. M. Dey, Leeds; J. F. Duesbury, Birmingham; H. Epstein, Guy's; R. Evans and J. D. S. Flew, Univ. Coll.; Christina Gibson, King's Coll.; J. C. Gregory, Univ. Coll.; C. E. Hagenbach, St. George's; D. V. Hague, Birmingham; R. L. Harward, Guy's; Anna M. Hilliard, Toronto; N. M. Hodivala, Bombay and London; M. C. Hounsfield, St. Bart.'s; Josephine M. Howells, Westminster; Dorothy M. James, Cardiff; H. Kaitz, Guy's; R. A. Kennedy, St. Thomas's; T. C. Kohler, Adelaide and London; Marie Krestin, Charing Cross; B. A. Lamprell, King's Coll.; R. R. Leaning, St. Mary's; W. E. B. Lloyd, Cambridge and St. Bart.'s; W. J. Lloyd and H. A. McGregor, St. Bart.'s; Olive S. May, King's Coll.; Margaret I. Meacock, Westminster; C. F. Moore, St. Bart.'s; O. N. Morris, King's Coll.; Ella M. Oswald, Royal Free; Irene A. Papenfus, Univ. Coll.; C. D. Politeyan, Cambridge and St. Thomas's; Dorothy K. Reynolds, King's Coll.; T. M. Robb, Guy's; W. J. M. Sadler, Univ. Coll.; G. Steinberg, Bristol; K. G. Sugden, St. Bart.'s; J. P. Thyne, King's Coll.; B. Timothy, London; W. R. van Langenberg, Middlesex; G. P. A. van Rossum and H. O. White, St. Bart.'s; F. Williams, Cambridge and London; A. Wilson, Leeds and J. S. Zidel, St. Bart.'s.

Surgery.—J. McL. Anderson, Charing Cross; W. R. Ashby, Cambridge and St. Bart.'s; A. L. Basham, St. Thomas's; N. Bissada, Manchester; W. Buckley, St. Bart.'s; F. Bush, Univ. Coll.; J. D. Cambrook and G. C. Campbell, Guy's; T. H. Carr, Leeds; S. S. Chesser, St. Thomas's; T. L. Cleave, Bristol; R. E. P. Cohen, Birmingham; W. H. Collins, London; C. F. J. Cropper, King's Coll.; C. H. Dale, St. Bart.'s; T. C. Dance, Birmingham; D. E. Davies, Liverpool; E. R. L. Davies, Cardiff; E. L. F. de Mel, Ceylon and Univ. Coll.; M. M. Dey, Leeds; A. Dodd, Liverpool; M. R. Doyle, St. Thomas's; L. L. Eksteen, Liverpool; M. M. El Toubi, Sheffield; M. J. Evans, St. Bart.'s; H. T. Flint, Westminster; J. P. Fraulo, Guy's; J. H. P. Games, Univ. Coll.; A. P. Gaston, St. Bart.'s; A. M. Ghaith, Birmingham; B. H. Gibson, St. Bart.'s; E. M. Goitein, Univ. Coll.; G. N. Grose, St. George's; H. W. Guinness, St. Bart.'s; M. M. Gyi, St. Thomas's; D. V. Hague, Birmingham; H. N. Hallam, London; N. F. Haslam, Birmingham; J. C. Hatrick, Univ. Coll.; W. Heard and L. Hennell, Middlesex; L. Hoffman, St. Bart.'s; E. R. Holiday, London; J. H. Hopper, St. Thomas's; E. J. Horn, London; I. M. Hughes, Manchester; W. L. Hurn and D. C. R. R. Jenkins, St. Bart.'s; I. J. Jones, St. Thomas's; H. Kaitz, Guy's; T. H. Khan, King's Coll.; G. G. King, St. Mary's; P. Kuhne, Lausanne; T. C. Larkworthy, St. George's; L. P. E. Laurent, Univ. Coll.; I. B. Lawrence, St. Bart.'s; J. Lieberman, Leeds; Olive T. Lloyd, Westminster; W. J. Lloyd, St. Bart.'s; Edna Lock, King's Coll.; S. McGladdery, St. Bart.'s; J. V. Macgregor, Univ. Coll.; K. W. Mackie, St. Bart.'s; W. A. N. Marrow, Middlesex; W. E. Mashiter, St. Thomas's; A. N. T. Meneces, Univ. Coll.; G. V. R. Mostert, Guy's; D. B. Mumby, St. Thomas's; J. J. O'Donoghue, London; Mary E. Pease, Univ. Coll.; A. L. P. Peeney, Manchester; A. E. Porritt, St. Mary's; R. W. Raven, St. Bart.'s; E. A. P. S. Rawlings, Charing Cross; R. W. Reid and W. G. Richards, St. Thomas's; M. Roberts, Liverpool; D. T. Robinson, Manchester; Esther Samuel, Madras; I. Schoub, London; H. A. Seidenberg, St. Bart.'s; J. Seidenberg and R. R. Shapland, Middlesex; L. Shillito, St. Thomas's; C. G. Sinclair, St. Bart.'s; P. D. B. Spence, Guy's; E. H. Spickett, Cardiff; G. S. Storrs, Cambridge and St. Thomas's; A. B. Swarbreck, Univ. Coll.; W. P. R. Swemmer, Guy's; I. C. C. Tchaperoff, St. Thomas's; J. E. Thomas, Cardiff; J. C. T. Tregarthen, Guy's; Elizabeth H. Waller, Charing Cross; A. R. Waterhouse, Leeds; R. N. Wilcox, St. Thomas's; E. A. Wood, Univ. Coll.; G. N. Wood, Guy's; J. L. M. Wood and J. A. Wood, Sheffield; Elsie E. Wright, St. Mary's; and N. R. W. Wynn-Williams, Middlesex.

Midwifery.—C. Ahluwalia, Charing Cross; Sofia Antonovitch and Mabel A. Baker, Royal Free; S. W. Barber, St. Bart.'s; Ellen M. Barnes, Univ. Coll.; G. Bellman, St. George's; H. Bernstein and J. R. Bond, Univ. Coll.; E. W. Bowskill, Manchester; J. W. Bromley, Cambridge and London; Nellie Brown, Westminster; C. E. S. Bullen, Leeds; H. L. Burke, Northwestern Univ.; D. W. E. Burridge, Leeds; F. Bush, Cambridge and Univ. Coll.; E. O. Butler, St. Thomas's; J. D. Cambrook, Guy's; A. N. Cameron, Liverpool; G. G. Cameron, Guy's; G. Campbell, Oxford and St. Thomas's; G. C. Campbell, Guy's; S. S. Chesser, Cambridge and St. Thomas's; T. L. Cleave, Bristol; F. Clifton, Cambridge and St. Thomas's; L. I. Cohen, London; E. T. Conybeare, Guy's; B. W. Cooke, St. Bart.'s; O. J. C. Cotton, Cambridge and St. Thomas's; C. H. Dale, St. Bart.'s; L. E. Daniel, Madrid and St. Thomas's; C. D. D. de Labilliere, St. Bart.'s; Claire de M. Dorey, St. Mary's; R. C. Dracup, St. Thomas's; J. F. Duesbury, Birmingham; J. C. E. Dusseau, Toronto; F. W. Earle, Liverpool; J. L. H. Easton, King's Coll.; Y. S. El Kommos, Cairo and St. Bart.'s; Marguerite M. Fenn, Royal Free; J. D. S. Flew, Univ. Coll.; R. B. Floyd, Cambridge and Manchester; E. C. I. Foot, Sheffield; Cecilia F. Fox, Bristol; T. R. Gaha, St. Mary's; A. P. Gaston, St. Bart.'s; Dorothea L. Gee, Royal Free; Caterina P. Giles, Cambridge and King's Coll.; F. N. Goggs, St. George's; Joan Goodger, Charing Cross; J. C. Gregory, Univ. Coll.; Gwendoline E. Grove, St. Mary's; E. Hacker, London; W. F. L. Hannay and H. N. W. Harley, Guy's; W. G. Harvey, St. Mary's; R. L. Harward, Guy's; N. F. Haslam, Birmingham; J. C. Hatrick, Univ. Coll.; Helen M. Herbert, Royal Free; R. T. Hicks, Univ. Coll.; Anna M. Hilliard, Toronto; J. M. Hulett, Guy's; Muriel S. Hulke and J. G. H. Ince, Univ. Coll.; D. C. R. R. Jenkins, St. Bart.'s; M. K. Jilani, Liverpool; Florence H. Johnson, Oxford and Univ. Coll.; Margaret L. Jones, Univ. Coll.; Emma J. King, Royal Free; S. E. Knowles, Guy's; H. N. Knox, King's Coll.; L. R. Lalwani, Bombay; B. A. Lamprell, King's Coll.; T. C. Larkworthy, Cambridge and St. George's; E. G. Laurence, St. Bart.'s; L. P. E. Laurent, Univ. Coll.; R. A. Leader, Guy's; R. R. Leaning, St. Mary's; Marjorie H. Lester, Royal Free; G. N. Lewin, Guy's; Mary Lightowler, Leeds; Dorothy M. Lufkin, Univ. Coll.; G. W. T. McDonnell, London; S. McGladdery, St. Bart.'s; J. V. Macgregor, Univ. Coll.; K. W. Mackie, St. Bart.'s; R. C. Mahajan, London; H. H. Mahmood, Middlesex; G. D. Malhoutra, St. Thomas's; W. A. N. Marrow, Middlesex; J. I. Mathias, Univ. Coll.; O. Matthai, Edinburgh; A. A. Miles, St. Bart.'s; I. Morris, Univ. Coll.; J. E. Morton, Guy's; N. S. R. Narasimhan, Guy's; G. P. Nixon, St. Bart.'s; R. Nutt, Oxford and St. Thomas's; J. J. O'Donoghue, London; Mary E. Pease, Univ. Coll.; R. E. M. Pilcher, St. Thomas's; V. Puri and A. Rabinowitz, Middlesex; H. Raj, Birmingham; Edith M. Redding, Charing Cross; R. W. Reid and R. G. E. Richmond, St. Thomas's; R. E. Rix, Guy's; A. M. Roberts, Cambridge and St. Bart.'s; H. G. G. Robertson, St. Thomas's; Elizabeth J. Robinson, King's Coll.; W. J. M. Sadler, Univ. Coll.; Esther Samuel, Madras; Christine F. T. Saville and Mary Scouloudi, Univ. Coll.; E. H. Sears, Guy's; H. A. Seidenberg, St. Bart.'s; R. Shelley, St. Thomas's; Thelma Shepherd, Royal Free; W. H. Simonds, Cambridge and St. Thomas's; C. G. Sinclair, St. Bart.'s; Edith J. L. Smith, Royal Free; J. L. Smith and T. R. Smith, Cambridge and St. Bart.'s; V. R. Smith, Manchester; W. P. Steenkamp, Jun., Louisville; A. B. Sullivan, London; A. B. Swarbreck, Univ. Coll.; G. Taylor, Manchester; I. C. C. Tchaperoff, St. Thomas's; E. W. Thomas, Cambridge and St. Bart.'s; B. Timothy, London; R. D. M. Townend, Univ. Coll.; F. H. Ward, St. Bart.'s; F. S. Warner, Guy's; H. G. Wells, Westminster; Eleanor L. C. West, Univ. Coll.; Alice E. S. Wharton, Royal Free; G. M. Willey, King's Coll.; J. Williamson, Liverpool; E. W. Winch, Cambridge and St. George's; H. S. H. Wood, Middlesex; E. C. Woodhead, Guy's; B. A. Young, Univ. Coll.

Pathology.—R. I. O'Farrell, Sheffield.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—On Monday, Nov. 14th, at 5 P.M., at the Medical Society, 11, Chandos-street, Cavendish-square, W., Mr. T. G. Stevens will give a lecture on the Treatment of Uterine Prolapse. On Wednesday, Nov. 16th, at 10.30 A.M., at the Victoria Park Hospital for Diseases of the Heart and Lungs, Dr. S. Roodhouse Gloyne will give a demonstration on the Pathology of Tuberculosis. The whole hospital will be open to post-graduates. On the same day, at 1 P.M., at the Royal London Ophthalmic Hospital, City-road, a demonstration will be given by Mr. Neame; and on Nov. 17th, at 2 P.M., at the London Temperance Hospital, Hampstead-road, Mr. Herbert J. Paterson will give a clinical demonstration in Surgery. The lecture and demonstrations are open to members of the medical profession without fee. From Nov. 14th to Dec. 3rd a course in surgery and gynæcology will be held at the Royal Waterloo Hospital, occupying the mornings and some afternoons. From Nov. 14th to 26th, in the afternoons, there will be a clinical course at St. Peter's Hospital, including a series of formal lectures on Diseases of the Urinary Tract. On Monday, Nov. 21st, to Dec. 17th, at 5 P.M., a series of lecture-demonstrations will be given at the West End Hospital for Nervous Diseases; and from Nov. 28th to Dec. 3rd there will be a course in Proctology at St. Mark's Hospital. Every afternoon from Dec. 5th to 17th a course of lectures and demonstrations will be given at the Infants Hospital, and during the afternoons of the same week a course will be given at the Blackfriars Hospital for Diseases of the Skin. A course will begin on Jan. 9th at the Prince of Wales's Hospital in medicine, surgery and the specialties, and on the same date a course on Diseases of Children will open at the Children's Clinic. Later, these will be followed by courses at the National Hospital for Diseases of the Heart, and at the Bethlem Hospital. Information, syllabuses, tickets, and specimen copies of the *Post-Graduate Medical Journal* may be had from the Secretary of the Fellowship, at 1, Wimpole-street, London, W. 1.

ROYAL SOCIETY.—The officers of the society have been recommended for re-election at the anniversary meeting on Nov. 30th. They include Dr. H. H. Dale as one of the secretaries. Among the Fellows recommended for election or re-election to the Council are Dr. E. D. Adrian, Sir Hugh Anderson, Sir Archibald Garrod, Prof. J. C. G. Ledingham, and Prof. G. Elliot Smith. Mr. Stanley Baldwin, the Prime Minister, has been elected a Fellow of the Society under Statute XII.

ABERDEEN UNIVERSITY CLUB, LONDON.—The seventy-eighth half-yearly dinner will be held at the Piccadilly Hotel, at 7.30 P.M., on Nov. 24th. The secretary's address is 9, Addison-gardens, W. 14.

Dr. George Nicol Henry, divisional surgeon to the L Division (Lambeth), Metropolitan Police, has retired after 36 years' service with the force.

Dr. Graham Little, M.P., has been elected an honorary member of the Royal Academy of Medicine of Rome and a Fellow of the Royal Society of Physicians of Budapest.

Colonel R. A. Needham, of the Indian Medical Service, has been appointed as delegate of India at the session of the Office International d'Hygiène Publique, to be held in Paris this month.

HARVEIAN SOCIETY.—A meeting of this society will be held on Thursday, Nov. 17th, at 8.30 P.M., at the Paddington Town Hall. A discussion on the Ætiology and Treatment of Anterior Poliomyelitis will be opened by Dr. S. A. Kinnier Wilson, followed by Dr. James Collier.

TUBERCULOSIS SOCIETY.—A meeting of this society will be held on Friday, Nov. 18th, at 8 P.M., at the house of the Royal Society of Medicine, 1, Wimpole-street, W. Dr. G. T. Hebert will read a paper on the Treatment of Tuberculous Empyema by Replacement.

ROYAL MICROSCOPICAL SOCIETY.—A meeting will be held at 20, Hanover-square, London, W., on Wednesday Nov. 16th, at 7.30 P.M., when the President, Dr. J. A. Murray, F.R.S., will read a paper on Methods for the Demonstration of Bacteria in Frozen Sections, and other papers will be contributed.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.—A general meeting of this society will be held at 1, Upper Montague-street, Russell-square, London, W.C., on Friday, Nov. 18th, at 5 P.M. Dr. J. J. Buchan, Sir Oscar Warburg, and Lieut.-Col. F. E. Fremantle, F.R.C.P., will speak on Health Aspects of the Factories Bill.

BRITISH MOSQUITO CONTROL INSTITUTE.—Arrangements have been made by this institute for providing a two-day instructional course in laboratory and field work, for the convenience of persons going abroad who have no time or no desire to acquire more than an elementary knowledge of the principles and practice of mosquito control. Courses are to be held every month, the first to begin on Tuesday, Dec. 6th, and will be given at the institute, Hayling Island, Hampshire. Arrangements have been made for providing an additional day's instruction for those wishing to obtain more detailed information.

DONATIONS AND BEQUESTS.—Mr. H. Clifford Turner has given £750 towards the £3000 required to complete the cost of the building of the new wing of St. Mark's Hospital, City-road, E.C.—Mrs. Agnes Mary Ellis, of Ashby-road, Burton-on-Trent, left £300 each to Burton-on-Trent Infirmary, Burton-on-Trent Nursing Institution, and Dr. Barnardo's Homes.—Mr. James Hulse Humphryes, Bickley, Kent, left £4000 to his wife for distribution between the West Bromwich District Hospital, the Royal Gwent Hospital, Newport (Mon.), St. George's Hospital, Bombay, and the Presidency General Hospital, Calcutta, as she may see fit.—Lady Malcolm, of Portallach and Park-lane, W., left £50,000 for charities, including £2000 to St. Dunstan's Hostel for the Blind, for a bed to be named after her, and £2000 for the Hospital for Permanent Invalid Soldiers, Richmond; £1000 each to the Hospital for Sick Children, Glasgow, Evelina Hospital for Children, Southwark Bridge-road, Dr. Barnardo's Homes, and several other charitable institutions.—Lord Iveagh left £60,000 to the King Edward VII Hospital Fund for London.—Mr. Noel Edward Kinnell, Emsworth, Hants, left £1000 to the Emsworth Victoria Cottage Hospital.—Mr. Hugh Mitchell, of Sunderland, has given £1000 to the Royal Infirmary there.—Mrs. Margaret Elizabeth Willans Cullen, of Oxton, Birkenhead, besides other bequests, left £500 each to the Edinburgh Medical Mission and the Birkenhead and Wirral Children's Hospital, and £200 each to the Birkenhead Borough Hospital and the Birkenhead Maternity Hospital.—The Dunfermline and West Fife Hospital extension fund has received a donation of £2000 from Mrs. Andrew Carnegie.

UNIVERSITY OF LIVERPOOL.—Dr. Tudor Jenky Jones has been appointed lecturer in the department anatomy.

UNIVERSITY OF BRISTOL.—The Long Fox Memori lecture will be delivered by Dr. Henry Devine, at 8.15 P. on Tuesday, Nov. 29th, in the Physiological Lecture Theat of the University. His subject will be the Reality Delusions.

MEDICAL EXAMINATION OF EMIGRANTS.—T Government of the Dominion of Canada propose to establi a medical service in Europe for the free examination European emigrants wishing to proceed to Canada.

ANTI-MOSQUITO CAMPAIGN IN SOUTH AFRICA.—T Durban Town Council has invited Dr. A. J. Orenstein, Johannesburg, to visit Durban and consult with the pub health department in regard to anti-mosquito measures that town.

ROYAL WATERLOO HOSPITAL.—Last week the Lo Mayor of London opened an extension of this hospital a a new nurses' home. The work, which includes an in-patie operating theatre, private wards, an enlarged out-patien department, a massage department, and a waiting-hall, l cost £54,000, of which £8000 has yet to be raised.

PAYING PATIENTS IN SURREY.—The Governors the Royal Surrey County Hospital at Guildford ha unanimously decided that every in-patient, while s presenting a letter of recommendation, shall be required pay 3s. a day towards the cost of maintenance, except wh circumstances justify whole or partial remission.

BIRKENHEAD HOSPITALS.—Mr. J. H. Clegg, retiring mayor of Birkenhead, has during his year of of collected a fund of £15,000 in aid of the hospitals of town. Of this sum £12,000 will be allocated to the Gen Hospital, which has a debt of £6,000, and requires £7 for the reconstruction of the out-patients' department.

PRESENTATION TO SIR BERKELEY MOYNIHAN.— connexion with his retirement from the staff of the Le Royal Infirmary, a fund has been raised to present Berkeley Moynihan, P.R.C.S. Eng., with his portrait, the presentation was made by the Lord Mayor of Leeds Nov. 7th. The portrait is three-quarters life-size and is work of Mr. Richard Jack, R.A.

WORTHING HOSPITAL.—A good response has b made to the appeal which was launched in 1925 for the s of £25,000 for purposes of extension, and on Nov. two new men's wards were opened, with 15 beds on the gro floor and 11 on the first floor. The sum of £14,000 ha far been raised, but although the district served by hospital includes a population of between 40,000 and 50,0 the contributions have come from only 408 subscrib The institution will celebrate its centenary in August, 19

MEDICO-LEGAL SOCIETY.—A meeting will be h at 11, Chandos-street, Cavendish-square, W., on Thurs Nov. 24th, at 8.30 P.M., when Captain Norman Parkes read a paper on a Case of Pathological Drunkenness Defence of Insanity at a Murder Trial. A discussion follow.—The annual dinner of the society will be held the Holborn Restaurant on Friday, Dec. 9th, at 7 7.15 P.M., the President, Sir William Willcox, in the ch

THE SOCIETY OF M.R.C.S.'s ENG.—At the ann general meeting of Fellows and Members to be held the College on Thursday, Nov. 17th, the following res tion will be moved by Dr. E. E. Ware, President of Society:—

"That this 39th annual meeting of Fellows and Mem again affirms the desirability of admitting Members to d representation upon the Council of the College, and de to place on record its regret that the Council, in taking a p vote of its Fellows on this question, should have is simultaneously a statement of so biased and partisan a na and have omitted to elicit at the same time the views of Members."

This resolution will be seconded by Mr. Lawson Dick supported by Dr. Stella Churchill.

INTERNATIONAL CONGRESS OF OTO-LARYNGOLO As we have already announced this congress will be hel Copenhagen next year from July 30th to August 1st. assist those attending it from this country a British mittee has been formed with Sir James Dundas-Gran President, Sir StClair Thomson as Chairman, and Mr. L Colledge, Mr. J. S. Fraser, and Mr. Watkyn-Thoma hon. secretaries. Mr. Sydney Scott is acting as treasurer, the subscription of 5s. may be sent to him at 130, Ha street, W. 1. In return members of the committee wi kept informed of all arrangements, with particular travelling to Denmark and the stay in Copenhagen. committee is open to all members of the profession.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Reassembly of Parliament.

PARLIAMENT reassembled on Tuesday, Nov. 8th, after ne summer recess. A heavy programme of legislation left ver from the summer session has to be completed before the rorogation, which is expected to take place a few days efore Christmas. Among the measures which the Govern- ient hope to pass are the Mental Deficiency Bill and the ursing Homes Registration Bill.

HOUSE OF COMMONS.

TUESDAY, NOV. 8TH.

Medical Men and Professional Secrecy.

Dr. VERNON DAVIES asked the Minister of Health what ecision, if any, he had come to with regard to the necessity allowing medical men to preserve professional secrecy in e Law Courts with regard to certain diseases.—Sir INGSLEY WOOD (Parliamentary Secretary to the Ministry Health) replied: This question is still under consideration.

Slum Clearances.

Mr. HERBERT WILLIAMS asked the Minister of Health at progress had been made so far this year with the licy of slum clearances.—Sir KINGSLEY WOOD replied: 4 schemes dealing with slum areas have been confirmed. ese schemes cover approximately 14,000 houses, of which 94 had been acquired by Oct. 1st, and 4363 demolished. nders for the erection of 7776 houses in satisfaction of the ousing obligations imposed by these schemes had been proved at that date and 5205 houses actually completed. ce Jan. 1st 11 schemes have been submitted by local thorities and 11 confirmed by my right hon. friend. It ll be appreciated that during the current year local authori- s have concentrated their energies on the building of as ge a number of houses as possible under their new building ogrammes, and my right hon. friend has every reason to ppose that an increasing number of them will now turn eir attention to the execution of slum clearance schemes hich they have already had under consideration for some ne past.

Industrial Training and Physical Disability.

Mr. LANSBURY asked the Minister of Labour how many n had passed through the residential training centres nnected with his department since the opening of those ntres up to Oct. 31st; how many were discharged as unfit training owing to physical or other disability; how many l obtained work on the land in Great Britain; how many l emigrated; and what number had obtained employment herwise than on the land.—Sir ARTHUR STEEL-MAITLAND plied: Up to the end of October 988 men had passed ough a course of training for employment on the land erseas, of whom 976 have been placed on farms in Australia Canada. 364 men received a general course of training for dustrial employment in this country, of whom 309 are own to have secured employment. In addition 63 men re been discharged as unfit to continue training on dical grounds.

Medical Adviser to Mines Department.

Ir. LUNN asked the Secretary for Mines if he could now ve the name of the new medical adviser to the Mines partment and his qualifications to enable him to deal h the various diseases peculiar to the mining industry.—Conel LANE-FOX replied: One of the candidates for the t has been selected, and the usual inquiries by the Civil Service Commission are proceeding.

Medical Diary.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MONDAY, Nov. 14th.—5 P.M., WAR. Paper: Major E. C. Lambkin, R.A.M.C.: Recent Investigations into the Treatment of Gonorrhœa.

TUESDAY.—5.30 P.M., GENERAL MEETING OF FELLOWS. Ballot for election to the Fellowship. 8.30 P.M., PATHOLOGY. Communications: Prof. J. McIntosh: The Histology of Some Virus Infections of the Central Nervous System. Prof. C. A. Pannett: Some Experiments on Tissue Survival. Dr. I. H. Maclean: The Mechanism of Experimental Leucocytosis. Demonstrations: Dr. J. M. Ross: (1) Bilateral Thrombosis of the Renal Vessels. (2) Ureteritis Hypertrophica Cystica. Dr. J. W. Orr: Sebaceous Glands in the Œsophagus.

WEDNESDAY.—7.30 P.M., ANNUAL DINNER OF THE SOCIETY, Hotel Victoria.

THURSDAY.—5 P.M., DERMATOLOGY. (Cases at 4 P.M.) Cases: Dr. J. A. Drake: Schamberg's Disease. Other cases will be shown. 8.30 P.M., ELECTRO-THERAPEUTICS, MEDICINE, SURGERY, ORTHOPÆDICS. Special Discussion on Radiological Pitfalls. Openers: Dr. A. E. Barclay (Electro-Therapeutics), Dr. E. I. Spriggs (Medicine), Mr. Max Page (Surgery), Mr. H. A. T. Fairbank (Orthopædics); Dr. A. F. Hurst and Mr. A. C. Jordan will also speak.

FRIDAY.—8 P.M., OBSTETRICS. Short Communications: Mr. J. P. Hedley: A Case of Papilliferous Ovarian Cysts. Dr. J. S. Fairbairn and Mr. T. H. Sims: Pseudomyxoma Peritonei Associated with Ruptured Ovarian Cyst and Appendicular Disease. Paper: Mr. A. R. Walker: Diabetes Mellitus and Pregnancy.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY, Nov. 14th.—8 P.M., Clinical Evening.

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE.

THURSDAY, Nov. 17th.—8.15 P.M. (at the London School of Hygiene and Tropical Medicine, Endsleigh-gardens, Euston-road), Dr. Mary V. F. Beattie, Major H. C. Brown, Dr. P. A. Buxton, Dr. A. Castellani, Captain W. Dye, Dr. H. M. Hanschell, Colonel S. P. James, Colonel Clayton Lane, Dr. P. H. Manson-Bahr, Dr. N. A. Dyce Sharp, Drs. J. Gordon Thomson and A. Robertson, Dr. V. B. Wigglesworth, and Dr. C. M. Wenyon will give demonstrations.

ROYAL SOCIETY OF ARTS, John-street, Adelphi, W.C.

WEDNESDAY, Nov. 16th.—8 P.M., Prof. Leonard Hill: Overcrowding in Public Conveyances.

LONDON CLINICAL SOCIETY.

THURSDAY, Nov. 17th.—9 P.M. (at the London Temperance Hospital, Hampstead-road), Discussion on Dyspepsia (postponed from previous meeting). Openers: Dr. John Ryle and Mr. Herbert Paterson.

CHELSEA CLINICAL SOCIETY.

TUESDAY, Nov. 15th.—8.30 P.M. (at the Hotel Rembrandt, Thurloe-place, S.W.), Sir William H. Willcox and Dr. William Hunter will open a discussion on Focal Sepsis. The meeting will be preceded by dinner at 7.30 P.M.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East, S.W.

TUESDAY, Nov. 15th.—5 P.M., Dr. P. C. Varrier-Jones: Village Settlements for the Tuberculous (Mitchell Lecture).

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn-fields, W.C.

THURSDAY, Nov. 17th.—3 P.M., Annual Meeting of Fellows and Members.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, Nov. 14th, to SATURDAY, Nov. 19th.—FELLOWSHIP OF MEDICINE. Special lecture at the Medical Society 11, Chandos-street, Cavendish-square, W., on Mon., at 5 P.M., by Mr. T. G. Stevens: The Treatment of Uterine Prolapse. No fee.—HOSPITAL FOR DISEASES OF THE HEART AND LUNGS, Victoria Park, E. Clinical demonstration on Wed., at 10.30 A.M., by Dr. S. Roodhouse Gloyne on the Pathology of Tuberculosis, in the Laboratory and Museum. The whole hospital will be open to post-graduates all day. No fee.—LONDON TEMPERANCE HOSPITAL, Hampstead-road, N.W. Clinical demonstration on Thurs., at 2 P.M., by Mr. Herbert J. Paterson on Surgery. No fee.—ROYAL LONDON OPHTHALMIC HOSPITAL, City-road, E.C. Clinical demonstration on Wed., at 1 P.M., by Mr. Neame on Ophthalmology. No fee.—ROYAL WATERLOO HOSPITAL, Waterloo-road, S.E. Post-graduate course in Medicine, Surgery, and Gynæcology occupying afternoons and some mornings, with lectures and clinical demonstrations, and operations.—ST. PETER'S HOSPITAL, Heprietta-street, Covent-garden, W.C. Post-graduate course in Urology, occupying every afternoon, with lectures and demonstrations and operations. Fee £5 5s. for two weeks' course.—NATIONAL HOSPITAL, Queen-square, W.C. Special post-graduate course in Neurology. Further information from the Secretary, Mayfair 2236.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY, Nov. 14th.—2.30 P.M. to 5 P.M., Medical, Surgical, and Gynæcological Clinics. Operations.

TUESDAY.—2.30 P.M. to 5 P.M., Medical, Surgical, Throat, Nose, and Ear Clinics. Operations.

WEDNESDAY.—2.30 P.M. to 5 P.M., Medical, Skin, and Eye Clinics. Operations.

THURSDAY.—11.30 A.M., Dental Clinic. 2.30 P.M. to 5 P.M., Medical, Surgical, and Ear, Nose, and Throat Clinics. Operations.

FRIDAY.—10.30 A.M., Throat, Nose, and Ear Clinics. 2.30 P.M. to 5 P.M., Surgical, Medical, and Children's Diseases Clinics. Operations.

There will also be a special demonstration of medical cases at 2.30 P.M. on Monday, and of cases for X ray on Thursday, at 2 P.M., by Dr. J. Browning Alexander and Dr. A. C. Dixon respectively.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 49, Leicester-square, W.C.

TUESDAY, Nov. 15th.—5 P.M., Dr. G. B. Dowling: Mycotic Diseases.

THURSDAY.—5 P.M., Pathology Demonstration.

WEST LONDON HOSPITAL POST-GRADUATE COLLEGE, Hammersmith-road, W.

MONDAY, Nov. 14th.—10 A.M., Dr. Dowling: Skin Department. 2 P.M., Mr. Donald Armour: Operations. 2 P.M., Dr. Trevor Davies: Gynæcological Out-patients.

TUESDAY.—11 A.M., Mr. Endean: Venereal Diseases. 2 P.M., Mr. Addison: Operations. 2 P.M., Mr. Sinclair: Surgical Out-patients.

WEDNESDAY.—10 A.M., Dr. Burnford: Medical Wards. 2 P.M., Mr. Tyrrell Gray: Operations. 4.30 P.M., Dr. Dowling: Preservation of a Youthful Skin (lecture).

THURSDAY.—11 A.M., Resident Assistant Surgeon: Ward Demonstrations. 3 P.M., Sir Henry Simson: Gynæcological Ward Visit. 4.30 P.M., Mr. Tyrrell Gray: Gastric and Duodenal Ulcer (lecture).

FRIDAY.—11 A.M., Dr. Pritchard: Modern Methods in Medicine. 2 P.M., Dr. Shaw: Medical Out-patients. 2 P.M., Mr. Vlasto: Throat, Nose, and Ear Department.

SATURDAY.—9.30 A.M., Dr. Burnford: Bacterial Therapy Department. 10 A.M., Dr. Owen: Medical Diseases of Children.

Daily, 10 A.M. to 5 P.M., Saturdays, 10 A.M. to 1 P.M., In- and Out-patients, Operations, Special Departments.

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road, W.C.

FRIDAY, Nov. 18th.—4 P.M., Mr. J. D. McLaggan: Otosclerosis.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION, St. James's Hospital, Ouseley-road, Balham.

TUESDAY, Nov. 15th.—4 P.M., Mr. L. G. Phillips: Clinical Demonstration of Gynæcological Cases.

ROYAL NORTHERN HOSPITAL, Holloway, N.: POST-GRADUATE COURSE.

TUESDAY, Nov. 15th.—3.15 P.M., Dr. E. G. B. Calvert: Recent Work on Exophthalmic Goitre and Allied Disorders with Cases.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

THURSDAY, Nov. 17th.—4 P.M., Mr. Twistington Higgins: Congenital Pyloric Stenosis.

ANCOATS HOSPITAL (Mill-street, Manchester) POST-GRADUATE LECTURES.

THURSDAY, Nov. 17th.—4.15 P.M. (tea at 3.45 P.M.), Dr. Kletz: Medical Treatment of Peptic Ulcer.

UNIVERSITY OF SHEFFIELD POST-GRADUATE CLINICS.

FRIDAY, Nov. 18th.—3.30 P.M., Mr. Townrow: Differential Diagnosis of Facial Pain.

JAMES MACKENZIE INSTITUTE FOR CLINICAL RESEARCH, St. Andrews.

TUESDAY, Nov. 15th.—4 P.M., Dr. Edwin Matthew: The Clinical Significance of Hæmatemesis. Discussion to be opened by Prof. Patrick.

FRIDAY.—4 P.M., Case reading and discussion, in which all medical practitioners are invited to take part.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE COURSE.

TUESDAY, Nov. 15th.—4.15 P.M., Dr. A. H. Holmes: Diagnosis of Pulmonary Disease.

FRIDAY.—4.15 P.M., Mr. J. Spalding: Demonstration at the Schools, Old Trafford, showing Physical and Educational Development of the Deaf Child.

PEOPLE'S LEAGUE OF HEALTH.

THURSDAY, Nov. 17th.—6 P.M. (at 11, Chandos-street, Cavendish-square, W.), Prof. B. Collingwood: Digestive Organs and Lymphatic Glands.

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.C.

WEDNESDAY, Nov. 16th.—4 P.M., Dr. Stenhouse Williams: The Milk-supply; What Shall our Policy be?

Appointments.

LAING, J. N., M.B., Ch.B. Manch., has been appointed Assistant Deputy Coroner of Manchester.

RHODES, W. F., L.R.C.P. Lond., M.R.C.S., Government Pathologist at Cape Town.

Certifying Surgeons under the Factory and Workshop Acts: BLAIR, A., M.B., Ch.B. Glasg. (Breage District of Cornwall); CAMPBELL, D., M.B., Ch. B. Aberd. (Ellon District of Aberdeen).

Vacancies.

For further information refer to the advertisement columns.

Aberdeen University.—Assistant in Pathology. £250 12*s.*

Birmingham and Midland Ear and Throat Hospital.—Asst. Surg.

Brighton, New Sussex Hospital for Women and Children.—Hon. Asst. Surg. and Hon. Asst. Anæsthetist.

Bristol General Hospital.—Hon. Surg. Reg. Also Hon. Asst. P.

Cairo, Egypt, Girls' Schools under the Ministry of Education.—Asst. Med. Inspector. L.E.480.

Chelsea Hospital for Women, Arthur-street, S.W.—Jun. H.S. At rate of £100.

Chester, Wrenbury Hall Tuberculosis Training Colony.—H.P. £250.

Chesterfield and North Derbyshire Royal Hospital.—Res. Surg. O. £300.

City of London Hospital for Dis. of Heart and Lungs, Victoria Park, E.—Res. M.O. £250. Also H.P. At rate of £1

City of London Maternity Hospital, City-road, E.C.—Obstet. to In-patients. Also Asst. Obstet. S.

Dreadnought Hospital, Greenwich.—Med. Supt. £300.

Dublin, Irish Medical Association.—Representative. At rate £100 for six months.

Dublin, Sir Patrick Dun's Hospital.—Clinical Physician.

Dumfries, Crichton Royal.—Clin. Pathologist. £400.

Durham County and Sunderland Eye Infirmary.—Locum.

East London Hospital for Children and Dispensary for Wom Shadwell, E.—Phys. Also Asst. Phys.

Elizabeth Garrett Anderson Hospital, 144, Euston-road, N.W H.P. Obstet. Asst., 2 H.S.'s. Each at rate of £50. A Clin. Assts.

Evelina Hospital for Children, Southwark, S.E.—H.S. £120.

Golden-square Throat, Nose and Ear Hospital.—H.S. £100.

Hospital for Sick Children, Great Ormond-street, W.C.—A Pathologist. £400. H.P. and H.S. At rate of £50. A Med. Reg. £250.

Infants Hospital, Vincent-square, Westminster.—Med. R £120. Also Asst. Surg.

Inverness, Northern Infirmary.—Jun. Med. Resident. £100.

London Jewish Hospital, Stepney Green, E.—Res. M.O. A Jun. Res. M.O. At rate of £150 and £100 respectively.

Malayan Medical Service.—Medical Inspectors of Schools. £7

Manchester, Ancoats Hospital.—Res. Med. O. At rate of £1

Manchester, St. Mary's Hospitals.—Hon. Consulting Surg.

Middlesex Hospital, W.—Res. M.O. £400. Also Asst. Ra logist. £150.

Middlesex Hospital Medical School.—Two Surgical and Medical Registrar. Each £300.

Newcastle-upon-Tyne, Royal Victoria Infirmary.—Hon. Phys.

New Zealand Research Laboratories.—Dairy Research Bacte logist. £850.

Norwich, Norfolk and Norwich Hospital.—Cas. O. and H £120.

Poplar Hospital for Accidents, East India Dock-road, E.—Sec Res. O. £175.

Prince of Wales's General Hospital, N.—Hon. Clin. Assts.

Royal Free Hospital, Gray's Inn-road, W.C.—Two Assts. M.O. in charge of V.D. Dept. Each £500. Surg. £200. Med. Reg. and Gynæcol. Reg. Each £100. A H.S.'s., H.P., Second H.P., and Obstet. Asst.

Royal Northern Hospital, Holloway, N.—Asst. Radiologist. £1 Out-patient M.O. At rate of £125. Also H.S. At r of £70. Also Ophth. S.

Royal Waterloo Hospital for Children and Women, Waterloo-rd S.E.—H.P. At rate of £100. Also Anæsthetist. rate of £25.

St. Bartholomew's Medical College.—Demonstratorship Physiology.

Salisbury General Infirmary.—H.S. £150.

Shrewsbury, Royal Salop Infirmary.—Sec. Supt. £600.

Sierra Leone, School Laboratory, Freetown.—Two Research As Each £600.

Southampton, Royal South Hants and Southampton Hospita Cas. O. £120.

Staffordshire Mental Hospital, Cheddleton, Leek.—Jun. A M.O. £350.

Surrey County Council.—Asst. M.O.'s. Each £600.

Swansea Hospital.—H.S. to Ophth. and Aural Depts. £150–£

Tipton Urban District Council.—M.O.H. £800.

Walthamstow, Wanstead, and Leyton Children's and Gen Hospital.—Hon. Asst. S. to Throat, Nose and Ear Dept.

Warwick County Mental Hospital, Hatton.—Asst. M.O. £30

West London Hospital, Hammersmith, W.—H.P., H.S., Asst., Cas. O., and Aural and Ophth. H.S. Each at of £100.

The Chief Inspector of Factories announces the follow vacant appointments for Certifying Factory Surgeons Southampton (Hampshire) and Wolston (Warwickshire

The Secretary of State for the Home Department gives no of a vacancy for a Medical Referee under the Workm Compensation Act, 1925, for the Districts of the Gr Thurrock and Southend County Courts. Applications sho reach the Private Secretary, Home Office, not later t Nov. 26th.

Births, Marriages, and Death

BIRTHS.

ANNING.—On Nov. 2nd, at Harrogate, the wife of Dr. C. C Anning, of a daughter.

BEAUCHAMP.—On Nov. 6th, at Church-hill, E., the wife of W Beauchamp, L.D.S. Eng., of a daughter.

DE CAUX.—On Oct. 29th, at Weymouth-street, W., the wife Dr. Francis Percival de Caux, of a son.

MARRIAGES.

KUNHARDT—EDWARDS.—On Oct. 29th, at All Saints' Chur Ealing, by the Rev. C. J. Sharp, Lieut.-Colonel J. C. Kunhardt, I.M.S. (retd.), to Marian Campbell, young daughter of the late David Edwards, Hatton, Ceylon, Mrs. Edwards, Ingl s-road, Ealing.

DEATHS.

MORRISON.—On Oct. 2nd, in the Soldiers' Home Annexe, Angeles, California, Malcolm McLean Morrison, M Ch.B. Edin.

PETTERSSON.—On Nov. 4th, following an operation, Dr. Her Pettersson, of Wetherby-place, S.W.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices Births, Marriages, and Deaths.

Notes, Comments, and Abstracts.

ANIMAL EXPERIMENTATION AND KNOWLEDGE.*

BY GRACE BRISCOE, M.B., B.S. LOND.

THE probability that the Dogs Protection Bill will be roduced another year, and the possibility of fresh legis-ion, prompted the executive of the Medical Women's deration to call for discussion and consideration of the ole question of animal experimentation. As the anti-risection agitation is largely run and financed by women, e opinion of this body of scientifically trained women comes of peculiar importance. The fight that is coming l be largely about dogs, but the whole principle of animal perimentation is at stake. The petition in support of the l was signed by over a million people, but many of these natures must have been secured under a misapprehension, the petition contained this false statement: "The dog s of late years been specially selected by vivisectors for ensive and peculiarly revolting and painful experimenta-n, and also for demonstrations of a prolonged and agonising ure before classes of students." The Under Secretary of te for the Home Office said in the House of Commons, in swer to this statement: "No such experiments would be mitted, and there is no evidence whatever that any have en place. In the case of experiments before students, y are all required to be performed under anæsthetics l the animal must be killed before it recovers consciousness." Nevertheless the false statement must have caused dless mental suffering to many animal lovers; those o were distressed should remember that disease is the in cause of suffering in the animal world, and the only y to alleviate it is to conquer disease by the spread of owledge.

The Fundamental Principle.

f it is wrong to use dogs in the search after knowledge it qually wrong to use any other of the higher animals. If s permissible to experiment on animals for the sake of fering humanity, then we must not shrink from applying t principle to the most domesticated of all animals, the , provided that there is a real necessity for its use. dical women must face this issue, as they have, perforce, use the results gained from animal experimentation in ryday practice. Can they, in all fairness, disapprove of h experimentation and, at the same time, make use of eficial knowledge gained therefrom?

o one will claim that the case for animal experimentation be granted without careful consideration. Everyone o holds a licence has to ask himself or herself if experi-ntation is morally justifiable. I have every respect for vegetarian who refrains from animal food on the ground t it is wrong to take animal life, but to carry out that nciple logically and universally would lead humanity into impossible position. The imagination boggles at the ught of a world existing on vegetable food only, without without wool, without leather. It seems part of the eral design of nature that higher animals should make of lower animals for food. The use of animal flesh for l is treated as part of the settled order of things, and e is no indication that such a proceeding is inconsistent h true humanity.

The Pronouncements of Royal Commissions.

We may take it for granted that, in general, mankind ms and exercises the power of life and death over nals, both for food and clothing. Are we justified in ming that power for the spread of knowledge? If we show that animal experimentation, performed under t careful safeguards against unnecessary suffering, has ught about a tremendous increase of knowledge and thus led directly to an astonishing alleviation of disease and ering, both in men and animals, then we can claim, and m boldly, the right to continue investigation without handicap of unnecessary limitations.

he subject has been repeatedly investigated by Royal missions. The verdict of the Royal Commission of 1912 thus: "Experiments upon animals, adequately safe-rded by law, faithfully administered, are morally ifiable and should not be prohibited by legislation." In 7 the chairman of another Royal Commission, Lord lton, a distinguished lawyer as well as a scientist, : "No man who knows anything of science has any bt whatever that the right way to advance knowledge is experiment. . . . When we are reduced to observation, the science crawls. When, and in proportion as you use experiment, the science advances rapidly. . . . As soon as you can bring experiment to bear upon a subject, you are free, but as long as you can merely observe, your progress is very slow. The reason is that experiment is like cross-examination, you can put the question you want, and nature always answers it."

The Safeguards.

It is right that such experiments should only be carried out under stringent safeguards, and they are most strictly controlled. Only those who hold a licence direct from the Home Office may perform an experiment on a living animal, and the experiment must be carried out in a specified place. Such experiments can only be performed in licensed laboratories, and the laboratories must always be open to inspection by the official inspectors. A strict record has to be kept of all experiments, and the record book is always open to inspection. All published articles describing experimental work have to be submitted to the Home Office. No one is granted a licence unless they are recommended as suitable by persons eminent in science or medicine. These safeguards make it almost impossible for unnecessary experiments to be performed by irresponsible persons.

There are three main classes of experiments. The first class includes feeding experiments and all inoculations and injections, which are practically painless and can be performed without an anæsthetic. The second class includes all severe operations, which must be performed under complete anæsthesia, and the animal must be killed before it recovers from the anæsthetic. The third class includes those experiments in which the animals are allowed to recover, although the initial operations are all done under an anæsthetic.

The first class covers the vast majority of all experiments. The Home Office report, published in July of this year, says: "In no instance has a certificate dispensing with the use of anæsthetics been allowed for an experiment involving a serious operation." Many of these experiments are performed on behalf of official bodies, with a view to the preservation of the public health. The Ministry of Health and the Ministry of Agriculture and Fisheries maintain laboratories which are registered for the performance of experiments having for their object the detection, prevention, and study of diseases of man and animals. Of the total number of experiments, 23 per cent. were carried out for Government departments and other public health authorities, and 46 per cent. of all experiments were for the preparation and testing of antitoxic sera and vaccines, and for the testing and standardising of drugs. These experiments on the whole involve no greater surgical procedure than an injection of strychnine or morphia, or a withdrawal of blood for diagnostic purposes. If a patient has an attack of pleurisy it is vitally important, for the sake of after-treatment, to know if the infection is tuberculous; the decisive test on a guinea-pig would be carried out under this class of licence. The practice of medicine would be greatly hampered if this kind of experiment were not allowed.

The second class of experiments is that in which the animal is not allowed to recover from the anæsthetic, and this covers 1·9 per cent. of the total number of experiments. In these experiments, as in an ordinary surgical operation, no pain is involved.

In the third class of experiments, where animals are allowed to recover, there are special safeguards. They may not be done under licence alone, but the experimenter must be provided with a special certificate, and due cause must be shown why such certificate should be granted. This class includes 2·7 per cent. of the total number, and of these only 5 per cent.—i.e., only 0·14 per cent. of all experiments—are on cats and dogs.

The initial operations are performed under anæsthetics and have to be carried out antiseptically, so that the healing of wounds shall, as far as possible, take place without pain. If antisepsis fails and suppuration occurs, the animal has to be killed. The Home Office report points out that "after the healing of the wounds the animals are not necessarily, or even generally, in pain, since experiments involving the removal of important organs, including portions of the brain, may be performed without giving rise to pain after the recovery from the operation; and after the section of a part of the nervous system the resulting degenerative changes are painless."

It must be remembered that there is little evidence that animals feel pain to the same degree as human beings. Animals do not go off their sleep or food after o eration in the way that humans do, but will run about the theatre and begin feeding directly they have recovered consciousness.

The Contribution of Animal Experiments to Modern Medicine.

Harvey was the originator of the modern method of experiment, as opposed to observation, and by means of his

* An address delivered to the London Association of the dical Women's Federation on Oct. 25th, 1927.

experiments on animals, mostly dogs, he laid the foundations of our present knowledge of the heart and the circulation. This discovery was made by experiment, not by observation. Up to this time it was commonly believed, as the fruit of centuries of observation, that the arteries contained air. Another great landmark was the discovery of chloroform; in this case the experimental animal was man, and the later details were worked out on dogs. But if these particular investigations were first made on volunteer man, that was still experimentation; indeed, in the true sense of the term, any surgical operation is "a vivisection." Later came the revolutionary discoveries of Lister, the dawn of antisepsis, and as a direct result the growth of modern surgery. Lister, giving evidence before the Royal Commission on Vivisection in 1875, said: "They (animal experiments) had the effect of giving me a kind of pathological information, without which I believe I could not by possibility have made my way in the subject of antiseptics. I have often felt that without the basis which I derived from experiments on the lower animals, I should never have been able to thread my way through the very perplexing, and apparently contradictory, facts which I met in the first instance." When Queen Victoria asked him to pronounce in condemnation of vivisection, he wrote in reply a long letter justifying the practice and proclaiming its necessity. In the course of this letter he said: "I have myself often performed experiments upon the lower animals, and if I have been privileged in my professional career to do anything for the good of my fellow men, more is to be attributed to these experiments than to any other work in which I have been engaged."

Much of Pasteur's work was done on crystals, yeasts, and moulds, but one of his most important researches was his investigation of rabies and his method of attacking that scourge. That work was only made possible by experiments on rabbits and dogs, and it has been of even more benefit to animals than to human beings.

When we remember that not only antisepsis, but the germ theory of disease, sprang from the combined work of Pasteur and Lister, we realise that the whole of modern surgery, and a considerable part of modern medicine, are directly derived from the knowledge these men gained from experimentation.

Diphtheria antitoxin was discovered by experiments on animals. The Metropolitan Asylums Board published a chart showing the result of using antitoxin in their hospitals. It came into use about November, 1894. The chart referred only to cases of laryngeal diphtheria and thus excluded all the mild cases. In 16 years the mortality from this class of severe case was reduced from 62 per cent. to 11·7 per cent. Before 1894 the average mortality among diphtheria cases, taking all cases together, whether slight or severe, was 30·4 per cent.; this was reduced to 8·3 per cent.

The preparation of calf lymph involves the use of animals. In 1924 there was a sudden outbreak of virulent small-pox in Ontario, Canada. The total number of cases was 67 and the number of deaths 32. The total population of the district was about 70,000 persons, and the Board of Health decided to vaccinate everyone immediately. No compulsion was used, but everybody, including the antivaccinationists, complied. Within six days 95 per cent. of the population had been vaccinated. As a result the epidemic was suddenly brought to an end. The statistics showed (for a detailed account see a publication of the Research Defence Society) that no person who had ever been vaccinated successfully at any time in his or her life died of small-pox; yet of the persons who had never been vaccinated successfully and who developed the disease 71 per cent. died. No one who had been vaccinated successfully within the last 12 years took small-pox at all.

Alleviation of Suffering due to Experiments on Dogs.

Dogs are not used for experiment if some other animal is equally suitable; they are expensive, and there is a natural sentiment against using animals who show such powers of friendship and companionship with mankind. The type of animal to be used for a particular experiment must be left to the judgment of the individual researcher; no one else is in a position to make the decision.

The technique of original and difficult surgical operations, like those on the gall-bladder and bile-ducts, was worked out on dogs, with the result that patients were spared a period of experimental operation, during which the mortality would certainly have been higher than was actually the case.

In some cases an incurable condition of myxœdema followed early operations for removal of the thyroid in goitrous patients. If more had been learnt of the functions of the thyroid by preliminary experiments on animals, those disastrous results would have been avoided. Consider the different degrees of suffering involved in the two cases. The dog experiences none of the preliminary agony of anticipation, which must be intensified when a patient knows that the operation he is about to undergo is, more or less, of an experimental nature. The animal is anæsthetised without any pain or distress, and in a large numb of cases is killed before it can come round again. So t total pain inflicted is infinitely less than in the case of t human, who has to bear the extreme discomfort of recover Anyone who has been through a serious operation kno that the worst part is the struggle back to consciousnes From the point of view of the infliction of least pain t humane way is to carry out preliminary trial operations suitable animals, and, as a rule, the most suitable are lar dogs.

The size of the dog makes it especially suitable f investigating problems of the circulation; other lar domestic animals cannot be kept conveniently in laborato quarters. Moreover, the dog's circulation more near resembles that of man than does the circulation of any oth domestic animal. The recent advances in our knowled of the mechanism of the heart-beat, of the nature of auricul fibrillation, and of the variations of the pulse, have be grounded on, or made possible by, experiments on do The new cardiac knowledge has relieved much needl mental suffering, where patients had been unnecessar condemned, through a misunderstanding of physical sig to lead inactive lives amid apprehensions of sudden dea

Again, the indirect method of measuring the blood pressu devised by Riva Rocci as the direct result of experiments dogs, is one of the most valuable weapons in the diagnos outfit.

The action of drugs and anæsthetics is very similar dogs and man. If the testing of new drugs is not to be carri out on dogs, then the alternative must be the patie The chemical constituents which cause the activity pituitrin have not been isolated, and it is therefore necessa to use physiological methods of assay.

In the nervous system the dog is nearer man than a other animal, except the monkey. When cerebral localisat was being worked out, it was found that there were fe centres which were represented both in man and in the which had not been discovered in the cat. These ea experiments on the dog led to a great increase in our kno ledge of the nervous system; nowadays, however, dogs ha been superseded by monkeys.

Dogs can thrive on a mixed diet very similar to ma and lessons learned from experimental diets can theref be applied directly to man. That rickets is a dise essentially due to a faulty diet is a piece of knowledge wh has been derived from puppies, and the knowledge causation indicates the cure. These painless experiments dogs, therefore, have not only led to a great decrease malnutrition among our children, but they have also tau us that early decay of the teeth and faulty enamel are to deficiencies in the diet. All these painless diet experime have to be carried out under licence, and make a la addition to the total number of experiments carried annually in this country.

The analysis of the chemical processes taking place the separate organs of the body during the digestion food was worked out by experiments on dogs, and analysis has led to a great improvement in the diagn and treatment of disorders of the stomach and intesti The only other possible animal for these experiments the cat, but the small size of its organs and the differe in its food and habits made it an unsuitable subject.

The work now being carried out by Pavlov on the fun mental instinctive reflexes in dogs is throwing a new l on the functions of the cortex, and will be of great valu psychology. Both in man and animals the aggregate reflexes constitute the foundation of our nervous activi Pavlov has constructed a special hospital for his anim and a full surgical routine is followed. He emphasises necessity for these precautions, without which reliable cannot be obtained.

Before the discovery of insulin there was no drug kn which could control diabetes, but since then many valu lives have been saved, sufferers returned to full work, much distress alleviated. All the experiments leadin this discovery were performed on dogs and, as far as know, could not have been performed on any other ani In this investigation the animals had to be kept alive a operation. The fact that dogs can be handled and band more easily than other animals is an important considera in selecting the experimental subject.

The method of resuscitation from drowning, associ with the name of Schäfer, was worked out on dogs, and been the means of saving many lives.

It must not be forgotten that animals themselves h benefited almost as much as man from the increas knowledge. Those who hold that their love of dogs bl them to the sufferings of humanity do not seem to re that experiment is going to reduce the sum total of an suffering. In addition to rabies, glanders and ant have been largely checked by the increase in knowledge w has resulted from animal experiments. The cure for m nant jaundice in dogs was discovered by experiment

gs, and has enabled dog lovers to keep animals in those rts of Africa where it was formerly impossible, owing to e high mortality (80 per cent.) from this disease. Again, erations can now be performed on valuable dogs, as we ow how to administer an anæsthetic with safety. There a crying need for more knowledge on the subject of temper, and those who are responsible for the *Field* temper Fund are wholly opposed to the Dogs Protection ll, as they hold that its passage would interfere with work ich is designed to relieve suffering amongst dogs. Veter- ry science is reduced to the wholesale slaughter of animals order to check foot-and-mouth disease; in a recent out- ak in the United States animals and other property to the value of $5,000,000 had to be destroyed, and the s in this country is commensurate. We cannot control se animal diseases until we know more about them.

There are many human problems still awaiting solution. ere is the problem of cancer, which kills about 50,000 people this country every year; tuberculosis is still a fatal ease; we know very little about encephalitis lethargica, her its cause or treatment; the pathology of influenza and group of kindred infective diseases is not fully known. en the vexed question of diet has not been finally settled. restigations must be crippled and hampered if dogs are luded from experiment.

Where Cruelty to Animals may be Found To-day.

There is great injustice in the charges of cruelty which are ught against investigators. Unscrupulous people will te experiments which were done many years ago, before esthetics were discovered, as being carried out now, or te those done abroad where control is not so strict as this country. The vast majority of experiments are nless, and the total amount of suffering is small compared h that caused by some forms of sport, or by a procedure h as castration. The operation of castration is allowed hout an anæsthetic. In the larger farm animals the end ieved by this operation (very painful if performed by kilful or uncleanly hands) is merely to make meat more der for human consumption. The owners of some ieties of dogs cut off their puppies' tails without an esthetic. No experimenter would be allowed to cut off tails of lambs or puppies, or to castrate an animal without anæsthetic. The societies which aim at preventing cruelty animals might well concern themselves more with these cedures, unsafeguarded by law and carried out for mmercial purposes, rather than attempt to hamper ntific research, which is legally authorised and supervised Government inspectors.

Without animal experiments in the past little of the dern equipment of the doctor would be left save the thoscope, and the use of that unaided has led to many apprehensions. It is difficult to think of any outstanding ance in modern medicine which has not been founded on nal experiment.

In the memorandum recently presented by the Medical Research Council to the Privy Council it is pointed out that 5,000 stray dogs are annually destroyed in London alone, because their owners are too callous or too poor to look after them properly. Under the Dogs Act of 1906 these dogs, when seized by the police, have to be destroyed if they are not claimed within seven days, and none can be used for the purpose of experimentation. Now if some of these animals were used for the purpose of painless experiment, no more would happen to them than if they had been sent to the ordinary lethal chamber, except that the anæsthetic would probably be administered in a more skilful manner in a laboratory. It would be necessary to provide for an adequate period before taking the animal's life, so that dog owners would have ample opportunity to recover lost or stolen dogs. The Council urged that the section of the Act relating to the destruction of stray dogs should be repealed. Such a repeal would remove from investigators the danger of using valuable or stolen dogs, a risk from which they cannot be entirely free under the present circumstances. Such a repeal would also do away with the incentive to dog-stealing and rectify the present anomalous position in the supply of dogs. To breed dogs especially for the purpose of experiment would be extremely expensive, and if there are stray unwanted dogs which have to be destroyed anyway, it would seem a superfluous proceeding to breed more. If, as I have suggested, legislation is proposed to permit the use of stray dogs, there is certain to be an acute controversy. Many general practitioners will be questioned by patients as to the rights and wrongs of the subject. Some patients will hold convinced and extreme views, and no amount of logic and argument will shake them. There will be many others who, though reluctant on sentimental grounds to acquiesce in the use of dogs, are yet unwilling to allow their sentimental emotion to override their sense of logic and judgment. These latter will demand a reasoned statement of the grounds on which science builds its claim to use animal life in the pursuit of knowledge. It is well to be equipped with a knowledge of results that have been attained in the past and a realisation of the many problems still awaiting solution, and to pass them on to such patients. In this way an enlightened public opinion on the subject will be built up.

The work of original investigation is very arduous and the material rewards are poor. It is only fair that the people who are best placed for seeing the benefits derived from its results should give moral support to those engaged in research, and protect them from abusive attack.

A DEBATE ON HUMANE SLAUGHTERING.

AT a debate held on Nov. 4th at the Birkbeck College under the auspices of the University of London Animal Welfare Society, discussion largely centred round the preliminary stunning of animals by means of mechanically operated instruments. The older methods of killing animals were held by several speakers to be cruel. The use of the pole-axe, with its broad axe end and more rounded thimble end, was warmly attacked and defended. The advocates of mechanically operated instruments made much of the ease with which slaughterers could become proficient in their use by practice on heads of dead animals; they took up the position that experience in the older methods has to be acquired by practice on living animals; sheep, owing to their docility were the unfortunate animals on which the older methods, other than the use of the pole-axe, were learnt. Mr. A. C. Knight, a past president of the London Meat Traders' Association, stated that slaughtermen acquired skill in the use of the pole-axe by learning to cut the horns of cattle. Several references were made to the City of London investigation, in which it was ascertained that in the killing of 100 bulls 249 blows with the pole-axe were struck, 100 steer were struck 123 times, 100 cows 127 times, and 100 pigs 155 times. Mr. Knight stated that his slaughterman had in nine months killed 251 bullocks with 253 blows.

Mr. A. C. Dewbury, manager of the Humane Slaughtering Department, R.S.P.C.A., referred to the squeal pigs gave when throats were cut as being different in character to their ordinary squeals and consequently as being an indication of pain. The claim that the severance of the large vessels of the neck by sticking results in immediate unconsciousness ("Dr. Leonard Hill says so") was disputed on evidence of a persistent corneal reflex. Other arguments not mentioned were the continuance of supply of blood to the brain by the vertebral arteries; Dr. Pfister, director of the Zurich abattoir, found that when animals have been stunned before being killed their meninges are normal, whereas in animals killed without previous stunning the meninges are intensely congested, an observation from which the deduction is made that suffering has occurred in the unstunned animals. The common practice of hoisting large (bacon) pigs by one leg before killing was condemned as cruel. Mr. Knight, in the course of the debate, stated that the use of the "maul"—a long hammer to stun pigs—was cruel; we have outside confirmation of frequent failure to stun the animal with one blow. The same speaker also condemned the tying of the legs of sheep together prior to sticking. The R.S.P.C.A. superintendent of slaughtering argued that all pig-stickers were not expert; an expert pig-sticker can command high wages, and all pig-stickers were not paid high wages; he thought that some of the pig-stickers never became expert.

Evidently "humane killing" has obtained many followers in this country; no less than 255 local authorities have adopted the by-law requiring this method of slaughtering, not, however, in every case for all species of animals—e.g., in Reading pigs need not be so killed. The Ministry of Agriculture recommends it for killing animals infected with foot-and-mouth epidemics. The London County Council had made an inquiry lasting nine months before adopting the by-law, obtaining information from Holland, Denmark, Norway, Sweden, and Germany. Mr. Dewbury made out a good case for the captive bolt. Although more than one speaker, including a slaughterman, stated that misfires often took place, it was evident that in the hands of a careful person these were rare. Captain C. W. Hume pointed out that it had been found that 1259 shots only were necessary to kill 1255 animals. Mr. Knight made the criticism that most of these animals were small, and that only a comparatively few bulls, animals notoriously difficult to kill, were included. The cause of misfiring was the omission to clean the apparatus, evidently not difficult; the correct sized cartridge for the animal to be killed (three strengths are made) must be used. The use of the bullet was not enthusiastically advocated. Mr. Knight referred to a young slaughterman he had seen through whose hand a bullet had just passed. Mr. J. R. Hayhurst, the superintendent of the Islington abattoirs of the City of London Corporation, on account of the danger ricocheting from the hard floors and walls of the slaughterhouse, did not welcome the idea

of bullets being used on the 10,000 animals killed daily there. However, the London County Council inquiry only elicited five genuine and one suspectedly genuine accidents between 1913 and 1920, five of which occurred with pistols of the free bullet type, and in the remaining case the type of pistol was not specified. These, of course, should be avoided if possible, yet the danger is not very great.

The question of injury to the public health, caused by the alleged more rapid deterioration of meat due to the splashing of minute blood-vessels in the flesh of animals previously stunned by mechanically operated instruments, was again raised. Mr. Dewbury, however, said that splashing could be seen in the flesh of pigs killed by sticking, and that Prof. Gerald Leighton had shown by microscopical examination that the objection of imperfect bleeding could not be upheld. Further evidence is afforded by the inability of skilled and experienced observers to distinguish between the flesh of carcasses bled after felling with the pole-axe and those bled after the use of some humane killer, also by the obligatory use of the instrument in Denmark and Sweden, in spite of their being countries from which large exports of bacon are made to this country, and which in consequence would and could not enforce any particular practice detrimental to the quality of the meat.

The Chairman, Prof. Fredk. Hobday, advocated the formation of a committee of investigation, composed of medical men, veterinary surgeons, butchers, and humanitarians. Reference was made to demonstrations from which the advocates and opponents of humane killing had drawn different conclusions. Mr. Hayhurst thought that neither side was quite sure of the results; should demonstrations by a suitable committee show that "humane" killing was the best method it should be made compulsory throughout the country.

MNEMONICS IN THE STUDY OF HOME NURSING.

IT may be doubted whether mnemonics can ever play a large part in the study of home nursing. That many people find them useful, however, is proved by the publication of a third edition of a book[1] which contains a large amount of useful information arranged in tabular form, and many ingenious words and phrases devised to act as keys to the subject under consideration. In some instances these mnemonics are bewilderingly ingenious. Disinfection must be *sure*, and to attain this it must be S, Suitable for the purpose; U, Undertaken on the spot; R, Reliable and sufficiently potent; E, Effective and sufficiently prolonged. It seems a pity, too, to use mnemonics to emphasise such virtues as personal cleanliness and obedience to the nurse herself, and it is doubtful whether an aid to memory can ever be of much value on such a wide subject as the duties of the nurse towards the patient. The little booklet does, however, contain many good working rules, and may prove useful as a résumé of previous work and wider reading, provided too much attention is not paid to the number of aids to memory scattered through it.

EMBRYO CELL DIFFERENTIATION.

IN his Croonian lecture, delivered last week before the Royal Society, Prof. Hans Spemann (Freiburg) described the transplanting of very small parts of newts' eggs from one embryo to another in order to see whether they would develop in the same way in their new surroundings. Most parts of the embryo were found to be quite indifferent in that they followed the development of the part of the embryo into which they were planted. A piece, for instance, that would have formed part of the brain made a part of the skin after having been grafted into the region of the future skin and vice versa. There was, however, one definite region of the embryo—namely, the mesoderm—which behaved quite differently. Mesoderm removed from one embryo and implanted into a more indifferent region of another, such as the region of the future skin, would not form skin, but would retain its own character and force its new surroundings to follow another line of development. Inasmuch as tissues of this kind "organised" the secondary embryo they were called organisers, and the region where they lay at the beginning of development the centre of organisation. Organisers, said Prof. Spemann, did not act only on embryos of the same species, but also on embryos of different species, of different genera, and even of different orders. Thus, for instance, where an organiser of one species of salamander was implanted into the young embryo of another species it there induced a secondary embryo, partly built up by the implanted cells and partly by the host, the cells of the two individuals being traceable in development. Organisers might also be produced experimentally out of pieces of a more indifferent charac
If such pieces were transplanted into the centre of organ
tion they assumed, after a time, some organising facu
Taken out again and transplanted into a new indiffer
region of another embryo they could now induce ther
secondary embryo. As these organisers did not have th
faculties from the beginning they were called second
organisers, or organisers of the secondary degree.
whole development, at least of these low vertebrates, mi
therefore be thought of as composed of single develop
processes linked together by organisers. As to their me
of inducing the changes, nothing certain was known,
some facts suggested to Prof. Spemann that the means v
chemical rather than dynamic.

[1] Compendium of Aids to Home Nursing (Home Nursing Simplified and Tabulated). Third edition, revised. By W. Corbet Fletcher, M.B., M.R.C.S. London: Bale, Sons and Danielsson, Ltd. 1927. Pp. 109. 1s.

"BAND AID" ADHESIVE BANDAGES.

WE have received from Messrs. Johnson and John
106, Golden-lane, London, E.C., and Slough, Bucks
specimen of a useful protective dressing for minor c
burns, and abrasions. It consists of a gauze pad, on ei
side of which is a strip of adhesive plaster for securing
dressing, the bandage being faced with crinoline cloth
keep it clean until required for use. The bandage car
quickly applied, holds firmly in place, and has a
appearance. It is put up in boxes containing six st
of bandage three-quarters of an inch wide, ready for app
tion to a wound, together with three large pieces which
be cut up into small strips as required, but larger size b
can also be obtained.

THE POWERS OF AN EIGHTEENTH CENTUR BISHOP.

IN what have been termed the Middle Ages of our his
the practice of medicine was almost entirely in the hanc
the clergy, and coming nearer our own time bishops, o
than the Primate at Lambeth, seem to have had the priv
of conferring degrees by which the bearer was entitle
practise the profession independently of the imprimatu
any other body. It is to be inferred from the follo
letter, of which we have received a copy from Miss Be
Couch, of Andover, that, at no very distant dat
bishop laid claim to the opposite right—namely, tha
preventing from exercising the profession in England
person who had taken his medical degree in a for
university. We have not before seen an instance of
enforcement of such a prohibition. The letter runs:—

"May it please your Lordp.

"After most humble Duty presented to your Lord' & a
Acknowledgmt of your Lordp's Favr, to let me know by
Ffrancis Cook The Information given against Me; I Pres
to lay before your Lordp, that 'tis above Thirty years s
that I was honour'd with the Title of Doctor of Physick.
Forreign University indeed, but after a Performance o
The Exercises Requir'd There, and after many years stan
in One of our Own. I do Confess too, that I have often
in Consultation with Dr. Bidgood and Dr. Davy, & somet
with Dr. Thurston, in This County; & with Dr. Polwhe
Dr. Stephens of Truro, in that of Cornwall. And I belie
did nothing then, or since, that brought me within the Pe
of any Law, in the true Intention & Meaning of it.

"But for these several years last past I have Confin'd mys
being willing to Intend matters of another Nature,
Burthensom unto my Thoughts. For that Reason I have Ex
myselfe to all Persons of Quality inviting my Assistance e
one or two of my Relations & Old Acquaintances. Nor h
lain one Night, or but one, out of my own house on *that* Acc
for above these ten Years. However, I am in your Lord
Judgment whither I shall Offend in giving Advice, Freel
the Poor; Or in giving my Opinion unto Others who, in
Extremity, Request it, Or, till they can procure Other H
which I have ever Encourag'd to & held myselfe Reliev'd
If your Lordshp, in your great Wisdom think Fit to Refus
your Permission in such Circumstances, (for I have long
withdrawn myselfe from general Practice) I shall cert
Conform to your Lordsp's Pleasure, as soon as it sha
signified to me. But I beseech your Lordp to do me the Ju
Not to take my Character from Rumors, which are al
Uncertain, & most times, Worse; Or from Men who, perh
may Envy me The Shadow I have, my whole life Affecte
keep in, & Who for that Reason, have never had the Opportu
(if they had The Will) of Understanding me Truely.

"I am Sensible I need your Lordshp's Pardon for This Bol
& Freedom; but am Sensible too, that I Commit it to a
Breast, which ever Loves Cleerness, & puts the best Constru
upon things that they will bear. And therefore I am i
Pain least any Advantage shall be made to my Prejudic
Any thing I have now Written; who am, with all Duty, R
Reverend & Right Honble

"Your Lordship's Most Humble & most Obedient Ser
RICH: BURTHOGGE

"Totness Sept 17, 1689."

The outer address of the letter is:

"These
For The Right Reverend Father
in God, Jonathan, Lord Bishop of Exon
att his Trelqwne Cornwall."

Jonathan Trelawny, adds Miss Couch, was one o
seven bishops sent to the Tower by James II.

A Review
OF
PROSTATIC ENLARGEMENT.

ing the Bradshaw Lecture delivered on Nov. 10th, 1927, before the Royal College of Surgeons of England

Y SIR CUTHBERT WALLACE, K.C.M.G., C.B.,
VICE-PRESIDENT OF THE COLLEGE AND SURGEON TO ST. THOMAS'S HOSPITAL.

RECENT years have added but little to our knowledge the function of the prostate. It is not apparent at it has any internal secretion, or that it exercises y influence on metabolism; it is a secondary sexual nd. The prostatic urethra above the entrance of e ejaculatory ducts is developed from the urinary upper part of the genito-urinary sinus and corre-onds with the female urethra; the part below springs m the lower part of the sinus and corresponds to e vestibule in the female. It is said that the gland bules of the prostate correspond to Skene's tubules at are found in the female urethra. If this is the se the prostate, like the breast, seems to be an tance of the economy of Nature, for she has modified e-existing structures to her purpose. In some imals, even in the male, the glands, though some-at bunched together, remain separate structures; t in others (as in the dog) they are collected together d form a structure very similar to the human ostate. It is interesting that the dog has a prostate ucturally very like that of his friend, the man, l like the man suffers from prostatic trouble in vanced years.

The glands that make up the prostate spring parently from all sides of the urethra, but the terior group ultimately atrophy. There has been ne doubt as to whether the glands that lie in the dline above the ejaculatory ducts are budded off m the posterior surface of the urethra or whether e glandular elements met with in this position y represent the displaced distal extremities of the nds that spring from the sides of the urethra. is is not a very important point, but it is this nd mass that goes to make up the so-called third e, which has been credited with being the cause most of the troubles that are connected with static enlargement. The gland mass that lies ow the ejaculatory ducts is seldom the seat of nges and usually retains its spongy nature. This nd mass is derived from the lower part of the ito-urinary sinus and has been said to have a arate blood-supply and to be at one period closed in a separate capsule.

Long before birth the prostate has assumed its ult form and the gland tubules the distribution that tains throughout life. There is no indication of y division into lobes or lobules. The tubules run from the side or posterior walls of the urethra ards the sides of the organ, tending to bend ward as the distance from the urethra increases. front there is very little if any gland matter. This ndless area represents an atrophy of tubules, not usion of constituent lobules. None of the tubules the gland reach the surface, thus leaving another n-glandular portion.

Lastly, there is always a considerable thickness of n-glandular tissue surrounding the urethral canal. tside the gland proper lies the pelvic fascia, taining in front and at the sides the prostatic xus, and behind lies the non-vascular fascia of nonvillier. Above the prostate is intimately ded to the bladder, as one would expect, having ard to the method of development.

HISTORICAL.

t is possible to-day dispassionately to survey the tory of prostatectomy. In the eighth edition of chsen's "Science and Art of Surgery," published in 1884, after describing various palliative procedures for enlargement of the prostate, the author continues:—

"Various operative procedures have been recommended and practised by Mercier and others for the removal of the mechanical obstruction caused by the enlarged prostate, but they are both inefficient and dangerous and have been almost unanimously condemned. In fact, the sole treatment of enlarged prostate consists in the regular use of the catheter, and when once this treatment has been commenced it must be continued for the remainder of life."

In the next edition, published in 1888, the above statement again appears with the following addition:—

"Lastly, within the last few months, F. McGill, of Leeds, and Socin, of Leipzig, have advocated the removal of the obstruction by suprapubic cystotomy . . . . he removes the projecting lobe with scissors and forceps or by enucleation with the fingers . . . . it seems hardly justifiable to submit him (the patient) to an operation the benefit of which is doubtful and which may prove fatal . . . . All his (McGill's) cases were undertaken on account of cystitis and other complications, but he suggests the possible extension of the operation to uncomplicated cases."

In 1886 Belfield, of Chicago, attacked the prostate by the suprapubic route.

The following paragraph from a lecture (1908) by our President carries on the history.

"The first suprapubic prostatectomy done in England was performed on March 24th, 1887, by McGill. In that operation and in many subsequent ones he removed only a small portion of the prostate in one piece, or in many pieces, cutting away the projecting and obstructing parts of the gland with scissors. Later Mr. Jessop introduced his 'ring-scissors,' which made this piecemeal removal of the gland an easier matter. The first attempt at enucleating a portion of the prostate in Leeds was made on Dec. 15th, 1887, by Mr. Edward Atkinson. This was during my house surgeoncy, and I quite well remember the enthusiasm the genial operator had for the case, and the simplicity of this procedure. On Dec. 17th, 1887, Mr. McGill employed this method of enucleation; a portion of the prostate, weighing 2 oz. 40 gr. which surrounded the urethra laterally and below, was enucleated in one piece."

McGill's operations were evidently done in cases in which the general condition was extremely bad; from what he says, however, he was obviously looking forward to practising the operation in more favourable cases. Mayo Robson and Mansell Moullin followed the method of McGill. In 1888 Harrison was advocating perineal section and prostatectomy, more especially in those cases of foul urine and degenerated kidneys, and in this way seems to have laid the foundation of the present two-stage operation. In 1893 White, of Philadelphia, reviewed the whole situation and quoted statistics stating that the mortality of the perineal route was between 13 and 14 per cent. and that of the suprapubic between 20 and 25 per cent. It was with the idea of finding a safer method of relieving the patient that White suggested castration. In 1894 Fuller, of New York, performed an operation apparently identical with McGill's procedure. In this same year Nicoll, of Glasgow, and Alexander, of New York, were performing a prostatectomy of similar nature to McGill's, but by the perineal route. During these years there was considerable discussion as to where the obstructing growths lay—that is to say, whether they were intra- or extra-vesical and whether the perineal or transvesical route was the best.

From 1886 until the close of the century the operative treatment of enlarged prostate was undergoing a slow and painful evolution. A certain number of surgeons were practising an operation which was practically similar to the modern one, but they were faced with a heavy mortality and were unable to persuade the profession as a whole to follow their lead. The general feeling of the profession can be gauged by the eagerness with which the so-called sexual operations were taken up. In the late 'nineties the operation of prostatectomy was again making headway and the sexual operations, having been found wanting, were declining. In 1900, while the treatment of enlarged prostate was still chaotic, Freyer published his series of successful cases, which, anyhow

in this country, re-established prostatectomy as an operation of choice.

Since this time the suprapubic operation has found favour with most surgeons and the technique of its performance has remained in the main unaltered, but alterations and improvements have been put forward. The alterations introduced have consisted in the main of a more wide opening of the bladder with the idea of rendering the operation less blind and for a better hæmostasis. I believe that McGill made some attempt in this direction, and in 1907 Rutherford Morison advocated a wide transverse opening in the bladder, a full exposure of the internal meatus, and a removal of the obstruction under the eye. Of recent years this method has been again put forward and practised by Thomson-Walker in this country and by the Mayo Foundation in America. The perineal operation has, on the other hand, found some formidable advocates and appears at the present time to be gaining ground.

THE SEXUAL OPERATIONS.

The history of the sexual operations is interesting and instructive. Castration as a remedy for prostatic enlargement was suggested to White by the shrinking of uterine fibroids after ovariotomy, the uterus being considered a homologue of the prostate. To test his theory White got a friend to castrate adult dogs; they found that atrophy of the prostate quickly followed. In April, 1893, Fredrik, the Norwegian, had made the same observation and performed castration for prostatic enlargement. Later it was found that, in 1775, John Hunter made the classical observation on the want of development of the prostate that resulted from castration in youth or infancy. In 1889 Griffiths reported that atrophy of the prostate followed castration in the adult dog.

Treatment by castration, although put forward academically, was taken up with a rush, and like many new treatments was at first apparently efficacious. Even unilateral orchidectomy was reported to be efficient. In the course of time, however, it was found that castration had a very definite mortality and was said to cause dementia, even if it did not cause death. The literature of the period also shows that castration could not be relied upon to cause an atrophy of the enlarged prostate. Prof. Frederick Hobday, in his book on "Diseases of the Dog and Cat," quotes three instances out of a great number of cases where castration was practised with beneficent results for enlarged prostate in the dog.

Vasectomy was next proposed as a slighter operation, but one warranted to produce the same effect. It had a vogue, but gradually it also lost favour and with it the sexual operations ended. It was supposed to act by causing an atrophy of the testicle—that is, virtual castration—and thereby an atrophy of the prostate. It was suggested as an alternative to castration because some observer noticed that atrophy of the testicle followed section of the vas, when this was accidentally divided in the course of an operation for varicocele. Now this observation, though it led to the extensive practice of vasectomy, was erroneous. What really happened was that division of the vas cut off the last remaining blood-supply of the testicle; the testicle atrophied from lack of blood and not on account of the division of its duct.

Mr. Shattock and I did some experiments to find out the truth of this matter, and we found that, while cutting off the blood-supply caused an atrophy of the testicle, division of the duct left the testicle entirely intact. While in the midst of these experiments we found that John Hunter had made the observation in the human subject that the testicle developed and contained spermatozoa although there was no connexion between the testicle and its excretory canal. In 1825 Astley Cooper, using a dog, divided the vessels of the cord on one side and the vas on the other. The testicle whose vessels had been divided sloughed, but the organ with the divided vas slightly increased in size. In 1829 the dog was killed and the epididymis was found full of spermatozoa; the testicle was normal. The specimen, No. 4289, is the Hunterian Museum. This experiment w repeated by Curling in 1842, by Gosselin in 1853, a more recently by Griffiths.

There are, therefore, in the above history t instances of knowledge acquired by experiment a then forgotten and buried, but rediscovered at a la period. In vasectomy, as practised for the relief prostatic enlargement, we have an example of h careful one must be to verify the facts before applyi them.

CAUSATION AND NATURE OF THE ENLARGEMENT

Two theories as to the nature of prostatic enlar ment have alternately held the premier place—name the infective and neoplastic. Nothing of interest this connexion has come to light of recent yea except that Hugh Young, by a careful statisti inquiry, has shown that gonorrhœa, at all ever plays no part in the ætiology.

At present most people regard the enlargement due to the growth of adenomata, and if this is accep the cause of prostatic enlargement is the same as t of other such growths. In this association it may useful briefly to allude to certain facts :—

1. The growths reproduce fairly faithfully the histolog features of the parent, both as regards stroma and gl tissue.

2. Encapsulation is usually very complete, especially old-standing cases.

3. Sometimes, however, the encapsulation is incomp and recalls certain adenomata of the breast.

4. The growths are often compound, one adenoma com ing several small ones.

5. The time of appearance is late in life and this may h some connexion with

6. The proneness of the growths to become carcinomat

7. The statement of some observers that the alveol the growths maintain a connexion with the excretory d and can be injected from the urethra if suitable means taken.

Point of Origin of the Adenomata.

There is still some difference of opinion as to exact place in the gland at which these masses a One school maintains that they are not true prost tumours, but arise in the subcervical or in the gla of Albarran, both of which are submucous. It m be in certain cases that this is their point of ori but in far the greater number the point of origin well within the prostate proper. Examination number of prostates about the age when the dis commences has shown that the white areas which the first indication of change from the normal spo prostate tissue lie a long way from the urethra, gradually they enlarge and approximate that ca and finally, when they come to operation, are covered by a very thin layer of urethral mu membrane. The adenomatous masses usually aris connexion with the acini which enter the prost urethra above the mouths of the ejaculatory du that portion of the gland which lies below seems little prone to this change and often retains normal spongy texture after the rest of the gland undergone a complete change. It is interesting to that the immune portion of the gland is appare developed from those tubules which are conne with the lower part of the urogenital sinus and with the urethra proper, and have been stated some observers to be surrounded by a distinct fib coat in the early stage of their development an have a separate blood-supply.

CAUSATION OF SYMPTOMS.

The symptoms must be of local origin, since bla function returns to practically normal when obstruction has been removed.

The symptoms can be discussed under the follo heads: frequent micturition, precipitate micturi hesitant micturition, dribbling after micturi interrupted micturition, and residual urine.

Frequent and precipitate micturition may explained by thinning and then replacement of

ontractile tissue about the internal meatus by the denomatous growth.

Hesitant and interrupted micturition are more difficult of explanation. Hitherto they have been put down to the ball valve action of the "third lobe." Now growth behind the urethra that could act in this way s a rarity, and I would suggest that these symptoms re caused somewhat in the following way. The rethra is surrounded by an adenomatous mass which s under tension caused by its growth stretching the athological capsule. The urethra is also bent at an ngle so that it forms a kind of flap valve. In order for rine to pass the pressure in the bladder has to be so djusted that it can overcome the increased pressure ithin the urethra and at the same time be insufficient o shut the valve. Any departure from the optimum ladder pressure will cause a cessation of the flow of rine. The distressing symptom of dribbling from the rethra after the act of micturition should have been nished may be accounted for by the elongation, tretching, and distortion of the canal by the denomata which have replaced the normal contractile ssue or hindered its orderly action.

Residual urine is most difficult of all symptoms to xplain—in fact, it never has been explained. The ost ingenious solution that has been offered is that hich attributes it to the intravesical pressure on ie varying cone-like projection of the prostate into ie bladder. When the bladder is full the cone will roject but little, but as the organ empties the cone ill offer a greater surface that is subject to pressure, ith the result that the urethra becomes occluded. nfortunately for this explanation, a vesical cone is ot always present.

I would suggest that residual urine is really a case bladder posture. Fullness of the bladder is a lative term. The usual act of micturition, when ce the initial stimulus of distension has been given, a continuous one. In the process of emptying the adder will contain from time to time an amount urine which in process of filling had produced no sire for micturition. If the act of emptying is ow or interrupted, as it is in prostatic trouble, it possible to imagine that the impulse necessary to rry the act to completion becomes dormant or fails be again initiated; to speak in homely terms, the adder imagines itself to be empty.

FATE OF THE CAVITY LEFT BY OPERATION.

Even before the revival of prostatectomy in this untry it was asserted by those who practised this eration that the procedure consisted in the total moval of the prostate. This assertion was reiterated this country and given as an explanation of the ccess of the operation. This was fortunate, since led to a proper appreciation of the morbid changes hich are taking place in the gland. It is now, I ink, admitted by most people that the modern eration for prostatic hypertrophy consists in ucleation of adenomatous masses from within the panded outer portion of the organ, and that there no real solution of continuity in this operation tween the bladder and the urethra. That fact counts in part for the almost unbelievable fact that s operation is very seldom followed by stricture. e process by which the healing of the urethra is ought about is worthy of a little consideration.

After the enucleation the urethra and bladder are ined by a ragged cavity, which may be at that oment of very considerable dimensions. Very soon er the removal of the adenomata, or rather at the ry moment of their removal, the cavity contracts ntripetally, so that not only are the sides of the vity brought together, but the bladder is at the me time approximated to the urethra. This contrac-n is caused by the resilience of the remaining rt of the prostate, and it may be remembered that s this resilience pressing on the central adenomatous ss which is in part the cause of the urinary diffi-lties. This contraction at the time of operation a very real thing and gives rise to considerable ficulty if the surgeon wishes visually to explore the cavity. After the operation the cavity continues to retract, so that in some cases within a few weeks a skiagram of the bladder shows no sign of its existence. Sometimes, however, a distinct cavity remains for a considerable period, though micturition is perfectly normal. It might be argued that the existence of this cavity shows that the internal sphincter is out of action. There is, however, another explanation. It is possible in those cases in which a cavity persists that the growth has been largely intravesical and that the top of the cavity corresponds not to the internal sphincter but to the level to which the mucous membrane of the bladder has been raised.

The contraction of the cavity may be looked upon as one of Nature's means of hæmostasis, and this consideration may raise some doubt as to the wisdom of habitually using a dilating device as a means of avoiding hæmorrhage. The retraction of the cavity is important in another direction, since it reduces the surface to be covered by epithelium.

When opportunity occurs of inspecting and digitally examining a bladder after a prostatectomy, it is remarkable how little abnormality is to be made out. Perhaps a small dimple at the internal meatus, or the meatus is not so dilatable as it normally is, and reminds one of the state of affairs in carcinoma or in the so-called "Mercier's bar." Again, it is almost impossible to be sure by rectal examination as to whether the prostate has been removed or not. Museum specimens of bladders after removal of the prostate are comparatively rare, and more are required for investigation; but the one in the Hunterian Museum, presented by Sir Rickman Godlee, shows very well what little distortion remains after operation.

THE TWO-STAGE OPERATION.

The two-stage operation was introduced quite early in the history of prostatectomy to rest the patient who was worn down by sepsis and want of sleep. The indications for its performance were at first almost entirely clinical.

The discovery and perfection of tests of urinary efficiency have extended and rendered more accurate the indications for the performance of this operation. It entails, however, certain disadvantages:—

1. There are two anæsthetics and two periods of anxiety and discomfort.

2. The enucleation is made more difficult by the shrinking of the bladder, the hardening and contraction of the prostate, and the induration of the abdominal wall. In addition the wound may become foul and phosphatic deposit give trouble.

If the two-stage operation is decided upon, the relative merits of catheter and suprapubic drainage are to be considered.

The catheter has been, with many surgeons, very successful; it avoids two operations, but it may give rise to a urethritis which is troublesome and in some cases to a definite rise in the blood-urea.

The suprapubic cystostomy has the great advantage that the condition of the prostate can be accurately determined by the only certain way—namely, that of bimanual examination.

Urinary Efficiency.—There are, of course, discrepancies between the various tests or parts of the same test, but in the main one is able to form a fairly just estimate as to the efficiency of the kidneys. But mention must be made of what is to me at all events a difficult problem. When is the surgeon justified in refusing to proceed to a second-stage prostatectomy?

There are a certain number of patients on whom a drainage cystostomy has been performed and whose urinary efficiency, as judged by the usual tests, has never fallen to a figure that would, in the first instance, have warranted a single stage prostatectomy, although in other ways they seem to be in good health. The question to be decided is this: What percentage of urinary efficiency is to be taken as justifying a completion of the operation after a period of drainage?

After-treatment.—I have nothing to say about this subject, except to express the opinion that whatever is the means favoured to carry off the urine after prostatectomy, the less the prostatic couch is interfered with the better. My cases have been very free from secondary hæmorrhage, and I attribute this to washing the bladder out only in exceptional circumstances.

BACK PRESSURE.

The mechanism whereby the loss of efficiency of the kidney is brought about is still unsolved. It is doubtful what effect the obstruction to outflow has on the constituents of the urine and what is the ultimate fate of a kidney whose duct has been completely occluded for varying periods. The rapid improvement that takes place in some cases after drainage of the bladder is mysterious. Perhaps the easiest explanation is that which attributes recoverable damage to vascular compression and not to histological change. It is usual to simply attribute the troubles of the kidney to "back pressure" and to leave it at that. When the subject is examined more carefully it is not so easy to understand how the kidney is subjected to an obstruction lasting over a long period.

It is not very obvious why we speak of back pressure in connexion with the kidney and do not use the term when we talk of obstruction in connexion with other ducts and the intestinal tube. It is an unfortunate expression, because it sometimes leads to the belief that the pressure which injures the kidney originates in the bladder as the result of tension or of muscular contraction. The pressure that dilates the ureter and destroys the kidney is the secretion pressure of the kidney, but it may be of interest to consider what are the pressures in the bladder that hinder the ureter in propelling the urine into the bladder; so long as the ureter can get rid of the urine, the kidney will be shielded from any noxious pressure.

I am indebted to Mr. B. W. Williams for the following observations incorporated in Table I.

TABLE I.—*Pressure in Bladder in Cases of Retention.*

Case No.	Duration of retention.	Bladder pressure in mm. mercury.	Amount of urine in ounces.	Case No.	Duration of retention.	Bladder pressure in mm. mercury.	Amount of urine in ounces.
1	36 hrs.	8–10	35	6	12 hrs.	34	46
2	7 days	23–25	85	7	24 ,,	27	50
3	48 hrs.	22–23	45	8	24 ,,	16	50
4	Overflow	19	20	9	22 ,,	8–10	36
5	3 days	29	42	10	24 ,,	24	40

They show the pressure in the bladder of some cases of retention. They were taken by means of a water gauge and have to be reduced to millimetres of mercury, as more readily appreciable. The pressures recorded are those found in the intervals between spasms of the bladder.

From this table it will be seen that the maximum pressure that the ureter has to overcome in a case of acute retention of urine is about 34 mm. of mercury. The pain occasioned at such a pressure is not to be endured; the individual is compelled to seek relief. From this it appears that any high pressure that may act injuriously on the kidney must be of very short duration.

In most cases, and even in cases with a considerable amount of residual urine, the pressure against which the ureter has to work must be very slight. In fact, it is difficult to see that the pressure in the bladder in most cases of residual urine can be greater than that which pertains in the ordinary course of filling of the bladder. It follows that there are three possibilities:—

(1) That the kidney is extremely sensitive to any obstruction, or

(2) That the damage done is in the nature of a sudden catastrophe (during an attack of retention), or

(3) That we must seek some unknown cause of kidney deterioration.

SUPRAPUBIC AND PERINEAL OPERATIONS COMPARED.

While the suprapubic method has been chosen by the great majority of surgeons, the perineal has been practised by surgeons of great repute and experience, one of whom has probably the lowest mortality of anyone. It is therefore useful to inquire if there is any cause for the majority to change their methods.

It is claimed that:—

1. The perineal is the more scientific, in that the enucleation is more deliberate and performed under the eye.
2. The ejaculatory ducts can be saved or ligated.
3. The urethral wall can be left intact.
4. The loss of blood is less.

To take these points one by one.

1. Some surgeons might say that by using a large vesical incision the enucleation can be carried out as openly and as deliberately by the suprapubic as by the perineal route. Putting this contention aside for the moment, it may be considered as to whether the enucleation under the eye is a material advantage. Removal of the adenomata is not a matter of delicate and difficult dissection, but really consists in entering a line of cleavage already established and following it to its conclusion. It therefore matters little whether this is done under the eye or not. An accurate judgement that all adenomata have been removed can be ascertained by bimanual examination when the suprapubic route has been used.

2. As regards the preservation of the ejaculatory ducts, if it could be shown that children had been born to patients who had undergone perineal prostatectomy it would be a point in favour of that operation as a restoration ad integram is always desirable. I am unaware, however, that a man has ever begat a child after a prostatectomy. As regards a man's virility, apart from power of procreation, we have already seen that section of the vas produces no effect. It is not very clear as to whether the occurrence of epididymitis is caused or prevented by rupture of the vas. If opening the canal can cause an infection to spread to the epididymis, it cannot be denied that infection can occur with an intact vas or one in which the lumen has been obliterated by ligature after rupture. In the matter of the vasa, therefore, it does not seem that the perineal method has any advantage over the suprapubic operation.

3. My observations on many post-mortem and operative specimens have led me to doubt the possibility of leaving the urethral wall intact in any but a very small and insignificant number of cases, and I should not be influenced on that account in the choice of the operative route.

4. If excessive bleeding could be certainly and effectively diminished by the perineal route that would be a very good argument in favour of its adoption.

5. As regards restoration of function and absence of a persistent operative sinus, the suprapubic method leaves little to be desired.

Prof. Hans Wildbolz in a recent communication has advocated the use of the perineal method and the suture of the neck of the bladder and the distal portion of the prostatic urethra. He also states that the mortality of the operation is less than that of the suprapubic method, that the former method leads to a smaller rise in the blood-urea, and that sepsis is practically abolished, and that union takes place per primam. If other surgeons can reach the same results it will be a great argument in favour of the perineal method.

One fact in favour of the perineal route seems to be connected with the treatment of prostatic carcinoma. If this operation justifies its performance and if it is considered that the prostate can be best excited by this method, the more surgeons familiarise themselves with its technique the better.

Best Time for Operation.

It is fortunate that, although the adenomata may be multiple, they are usually all of an age, so that when they have necessitated operation their removal

hardly ever followed by the formation of others. should be the aim of the surgeon to remove the bstruction before the urinary function is depressed.

If the prostate is large and resilient and the life of ie patient is disturbed by his trouble the decision operate presents no difficulties. On the other hand, the prostate presents no great departure from the ormal and the patient is willing to put up with what scomfort he has, most surgeons would, I think, be illing to wait, provided the kidneys are efficient and ie patient can be watched.

Some statistics that I will bring forward later seem point to the fact that the mortality of prostatectomy nyhow in hospital patients) will not be reduced until e cases present themselves for earlier treatment. ore difficult are those cases in which the life of e patient is being somewhat disturbed by urinary oubles and examination per rectum shows a prostate rhaps a little large, but not much altered in shape size. Such a case may prove to be a simple prostate nich has not greatly enlarged or not enlarged toward e rectum, a case of carcinoma, or "prostatic bar." know of no sure way in which the matter can be ttled except by opening the bladder and a bimanual lpation.

It has been truly remarked that if an individual is stined to have trouble with his prostate he is lucky the organ, so to speak, ripens quickly, about the e of 60. The kidneys will most probably be in good ndition, a single-stage operation is possible, and ere is a prospect of many years of health and joyment of life.

CARCINOMA.

Up to the present it cannot be said that the atment of carcinoma has been satisfactory, either m the operative or radiation point of view. The erative treatment involves the entire removal the gland. This is a difficult and tedious procedure. has been accomplished, however, in a limited mber of cases by the perineal and by the trans-ic routes and the feasibility of a satisfactory union the bladder and urethra demonstrated.

If the mechanical difficulties of removal have been t over, it cannot be said that the difficulties of gnosis sufficiently early to justify a serious opera-n and offer a reasonable prospect of cure have en surmounted. Herein, to my mind, lies the ix of the question. The diagnosis of carcinoma is ually made on the hardness, the nodularity, the ation of the prostate as felt per rectum, and the lasticity of the internal meatus as felt from the dder. By the time that the signs of malignant ease are irrefutable, as judged by a rectal or stoscopic examination, the time of successful inter-ntion is probably passed. The rigidity of the internal atus, which is a useful sign, can only be ascertained er a suprapubic cystostomy, which is a distinct advantage if the prostate is to be excised by the rineal route. Again, there is the difficulty of gnosing carcinoma from that undifferentiated up of affections that may be classed under the m "post-urethral bar."

Adenocarcinoma in its own way presents almost great a difficulty to the surgeon. This condition y be diagnosed in the process of enucleation of presumed adenomatous mass, or it may not be gnosed until after a microscopic examination. re the surgeon has three courses open to him:—

. He can proceed forthwith to a total extirpation of prostate, whose removal will have been made all the re difficult by the already accomplished operation.

. He can wait and put the matter before his patient.

. He can allow the bladder to close, if it will, and establish suprapubic drain when obstruction supervenes, which ually happens within six months.

IRRADIATION.

This has been carried out from the urethra, from rectum, by means of needles introduced through perineum or through the bladder; deep therapy s also been used. Irradiation in the case of carci-na of the prostate is in the same condition as irradiation for carcinoma in other parts of the body We are slowly and painfully groping our way towards a better knowledge. There are many groups of observers doing good and careful work throughout the country, but I cannot help wishing that someone who has the means would by his generosity render possible a more intensive study of the subject.

Prof. Sidney Russ, of the Middlesex Hospital, has kindly prepared for me Table II., which shows

TABLE II.—*Estimates of Publicly-owned Radium (1927) for Medical Purposes.*

Country.	Population (millions).	Grammes of Radium.	Grammes per million of population.
France	40	18	0·45
Belgium	7·5	4	0·53
Denmark ..	3·3	2	0·59
Sweden	6	2·65	0·44
Germany	56	2	0·04
British Isles ..	45	11·5	0·25
Australia	6·2	10	1·60

an estimate of the radium publicly owned in the countries named. The figures for the British Isles include the radium held by the London, Manchester and Glasgow institutes.

MORTALITY.

It is extremely difficult to arrive at a just mortality of any operative measure. The mortality of operations in private practice is almost always better than that in hospital, owing to the different social classes from which the patients are taken.

I may give in the first place a few instances of figures given by individuals. In 1893 White, of Philadelphia, as we have seen, gave the mortality of the perineal route as between 13 and 14 per cent., and that of the suprapubic as 20 to 25 per cent. In 1912 Freyer gave the mortality in 1000 cases as 5½ per cent. and stated that in the last 100 cases it had fallen to 3 per cent. Hey Groves, commenting on these figures, said that he had taken the mortality for all the available large hospitals in the kingdom and found it to be 40 per cent. Hugh Lett, in 1913, said he believed that the mortality of hospital patients was 20 per cent. Fullerton stated in the same year that his mortality in 55 cases was 7·2 per cent.

Hugh Young, in his "Practice of Urology" (1927) gives his mortality for the perineal operation as 3·4 per cent. in 1049 cases, and Wildbolz just recently has stated that his mortality for the suprapubic method (105 cases) is 15 per cent. and for the perineal operation (305 cases) is 6·5 per cent. These figures show very real differences.

Through the courtesy of some surgeons I am able to show some figures from different hospitals which are a good guide as showing the results in one class of patients. (Table III.)

TABLE III.—*Mortality of Operations in Four London Hospitals.**

—	Total.	Died.	Mortality.	Individual mortality.
Enlarged prostate	831	131	15·8	13·1; 13·5; 17·8; 20·1
Prostatectomy	621	88	14·2	12·9; 14·5; 17·5; 20·8

* The figures are the last available.

An absolute mortality has a definite value, but a more satisfactory way is to contrast two sets of comparable statistics. This I can fortunately do. Mr. Max Page, in the Hospital Reports for 1910, published the results of prostatectomy at St. Thomas's Hospital and one can compare these with our more recent figures. (Table IV.)

It is at once apparent that the mortality from prostatic trouble has not materially fallen; that of prostatectomy has fallen from 20·2 per cent. to 14·5 per cent., but the total operative mortality has

somewhat risen. It will be seen that the surgeon has been more chary in performing the one-stage operation and that the deaths that formerly would have been recorded under prostatectomy are now to be found under cystostomy. If hospital statistics

TABLE IV.—*Mortality of Operations for Simple Enlarged Prostate.*

Treatment.	1906–1910. Total cases, 131. Died, 28.				1922–1926. Total cases, 219. Died, 44.					
	S.P. pros.		S.P. cyst.		S.P. cyst.		S.P. pros.			
							Two stage.		One stage.	
	T.	D.	T.	D.	T.	D.	T.	D.	T.	D.
	69	14	20	4	41	21	77	9	68	12
Method mort.	20·2		20·0		51·2		11·7		17·6	
Pros. mort.	20·2		—		—		14·5			
Total op. mort.	20·2				22·5					
Total mort.	21·7				20·1					

S.P., pros. = suprapubic prostatectomy. Cyst. = cystostomy. Op. mort. = operative mortality. T. = total; D. = died.

are to be improved, the patients must seek help earlier than hitherto. A striking fact is the good results that follow the two-stage operation in spite of certain disadvantages.

In conclusion, I think one may say that, whatever is the true mortality of prostatic enlargement, the outlook for the prostatic has improved out of recognition since 1886.

THE PACEMAKERS OF THE HEART.

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AND
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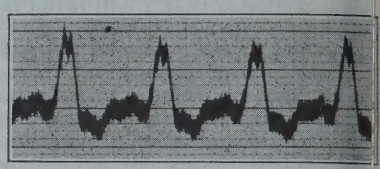
IN the healthy individual the rhythm of the heart is almost regular, though the rate varies from time to time with emotion, changes in position, exertion, fever, &c. The wave of contraction starts at the junction of the superior vena cava and the right auricle, flows over the auricles, and then spreads to the ventricles. There is, however, a difference in the course of the contraction in the auricles and in the ventricles. In the former the contraction starts at the sino-auricular node and spreads radially throughout the auricular muscle. In the latter the stimulus, reaching the auriculo-ventricular node, passes along the auriculo-ventricular bundle and its branches, from which it is distributed in an orderly way to the several parts of the ventricles. The electrical complexes of the auricular and the ventricular contractions are thus different. The auricular complex is a simple round-topped deflexion, the representative of a uniformly spreading contraction throughout the muscle. The ventricular complex, on the other hand, is composed of four deflexions, two of which are positive and two negative. These represent the peculiar orderly spread of the contraction to the several parts of the ventricles. The auricular complex is the same for everyone. The ventricular complex of the healthy individual, on the other hand, is characteristic, and continues even to the most minute detail from year to year. But from any cause the normal pathway of the stimulus through the ventricular muscle is broken, the ventricular complex is at once altered, as, for example, in bundle branch block (Fig. 1), where the four deflexions are abolished, and replaced by two of wholly different form.

The rhythm of the normal heart, as judged by the finger or the ear, is quite regular, but if accurate measurements of tracings are taken the regularity is found to be but relative, as the pulse periods vary by fractions of a second. In many individuals, however, the apparent regularity of the pulse is interrupted from time to time by extrasystoles. These may arise in any part of the heart—the auricles, the ventricles, the connecting pathway the auriculo-ventricular node, the bundle, and its branches. Usually they arise in some part of the primitive cardiac tissues.

FIG. 1.



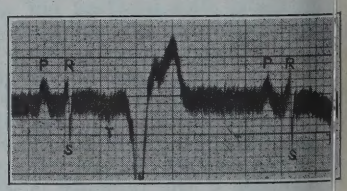
Bundle branch block. Lead I.

Extrasystoles.

Extrasystoles present special characters according to their site of origin. In Fig. 2 a ventricular extrasystole is shown. The first complex is practically normal, the auricular P being followed after an interval of normal length by R, S, and T. The second beat is premature, and quite different from the first. The initial deflexion is downward and its duration is longer than the R's of the first beat, while the second deflexion is in the opposite direction upwards. The irregularity on the upstroke of the second deflexion marks the occurrence of the auricular contraction. The third beat is normal, a replica of the first.

The abnormal character of the ventricular complex shows that the contraction originates in an abnormal site. The increased duration of the first deflexion shows that the stimulus is travelling through the muscle in an abnormal way. The large size of the T shows that the termination of the ventricular contraction is also abnormal. The beat is not merely premature; it is abnormal in its site of origin and in its mode of contraction, as well as in its rhythm. Such an abnormal complex has been shown experimentally to be due to the contraction arising in the left ventricle.

FIG. 2.



Ventricular extrasystole. Lead II.

In auricular extrasystoles, on the other hand (Fig.), the ventricular deflexions are normal and exactly similar to those which obtain with the regular rhythm. The fifth auricular complex is premature, but otherwise normal in character, as the stimulus always passes in a radial manner through the auricular muscle. As the stimulus is premature, conduction has not quite recovered from its last activity, and in consequence the P–R interval is longer than that of the normal beats. But as soon as the stimulus has traversed the auriculo-ventricular node and bundle it passes onward through the usual channels to the ventricular muscle, giving rise to a normal ventricular complex.

In nodal extrasystoles (Fig. 4) the ventricular complex is also normal, as the stimulus reaches the ventricle through the normal channels. The auricular complex is abnormal, a single deflexion but *inverted*,

showing that the stimulus, arising in the vicinity of the auriculo-ventricular junction, has passed *backwards* through the auricular muscle.

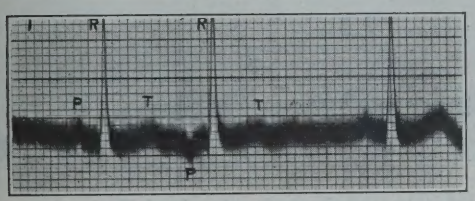
Paroxysmal Tachycardia.

In extrasystole when the dominant rhythm of the heart is normal, with the auricles and ventricles responding in sequence to stimuli which arise in the sino-auricular node, the dominance of that node may be interrupted from time to time by the occurrence of a contraction which originates in some other part of the heart. In some cases, however, the dominant rhythm may be abnormal, as the contractions of the heart are due to stimuli arising regularly in some other part than the sino-auricular node. This is well seen in paroxysmal tachycardia, which is really a series of extrasystoles continuing indefinitely. Any form of extrasystole, ventricular, auricular, or nodal, may be responsible.

In Fig. 5 all the complexes are similar and exactly the same as those of the ventricular extrasystole shown in Fig. 2. The tachycardia is ventricular in origin, all the beats originating in the left ventricle.

Fig. 6 shows an auricular tachycardia. The first two beats are of sinus origin, P regularly preceding Q, R, S. But the second S is followed by *two* positive deflexions,

FIG. 4.



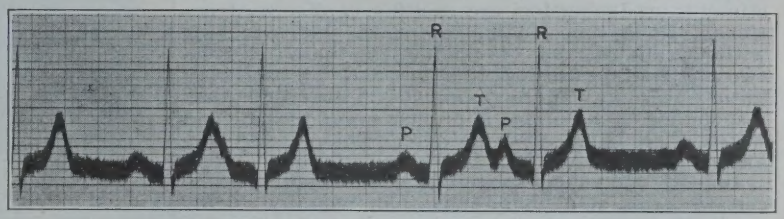
Nodal extrasystole. Lead II.

the second of which is evidently the normal T of the beat as it succeeds R after a interval of normal length. The first deflexion is then a premature P, which is followed after an unduly long interval by an R, which is appreciably smaller than those of the infrequent rhythm. The succeeding T's are all of large size and long duration, evidently the result of the fusion of T and P. (Such an occurrence can be seen in the second complex of Fig. 3 where the auricular contraction occurs so early that it is intermingled with the T of the preceding ventricular contraction, and not immediately after it, as in beat 5.) For the next 2 beats T and P remain inseparable, and the paroxysm then ends as abruptly as it began.

Fig. 7 shows a paroxysm of nodal tachycardia, P being inextricably fused with the ventricular complex, probably occurring synchronously with and deforming S. In Fig. 8 P is inverted and precedes R.

In all these three records the ventricular complex is similar to that of the infrequent rhythm, an indication that the stimulus is reaching the ventricle through the usual channels, bundle, branches, &c. The dominant rhythm of the heart may also be abnormal in cases

FIG. 3.

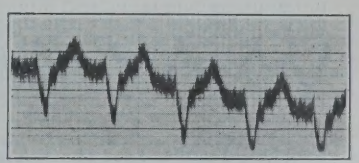


Auricular extrasystole.

where the rate of the contractions is not frequent. The infrequent nodal rhythm shown in Fig. 9 has normal ventricular complexes throughout which are exactly similar whether in response to a normal auricular contraction as in beat 1, or to those of the inverted P's in beats 3, 4. The change of pacemaker in this case is abrupt, though the rhythm and the rate of the cardiac contractions remain unaltered.

It is not always possible to distinguish between auricular and sinus rhythm if the rate is frequent. In auricular extrasystoles the form of the auricular deflexions is similar to that of sinus origin. If the rate is frequent the short duration of diastole causes a prolongation of the P–R interval, but if the rate is infrequent the increase may be imperceptible. Some of the cases of so-called juvenile irregularity, which are commonly ascribed to variations in the sinus rate, may perhaps be due to the occurrence of auricular extrasystoles.

FIG. 5.

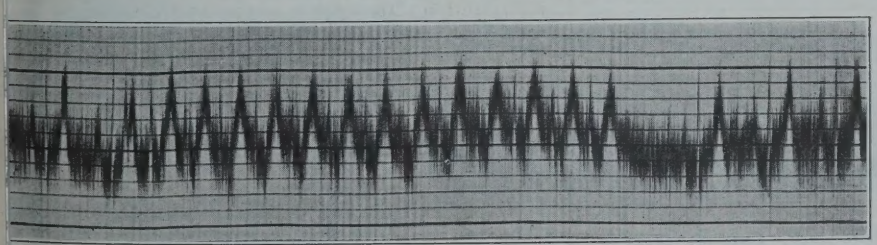


Ventricular tachycardia. Lead III.

Parasystole.

It is thus apparent that the cardiac contractions may be due to stimuli arising in various situations in the heart, in auricle, auriculo-ventricular node, or in the ventricle itself, as well as those which originate in the normal site, the sino-auricular node. A single abnormal beat may occur, or a series of beats which may continue indefinitely. The new pacemaker may produce either a frequent or an infrequent pulse-rate. The onset and the termination of the paroxysm are usually abrupt, but the alteration may occur without any change in either the rhythmicity or the rate of the pulse. A change in the rate of the pulse may be due to a change in the site of the pacemaker, as well as to alterations in the rate of production of stimuli at the sinus node. In the foregoing examples we have seen the functions of the normal pacemaker of the heart usurped by an abnormal pacemaker. either for the single beat of an isolated extrasystole, or for a series of beats. But it may happen that the normal pacemaker and an abnormal one function side by side.

FIG. 6.



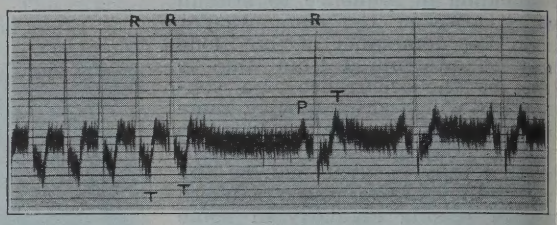
Auricular tachycardia. A premature auricular contraction occurs after two normal beats. This is the first of a series of stimuli of high frequency which throw the heart into a paroxysm of tachycardia.

The simplest example is full heart-block, blocking of the passage of the normal stimulus from the auricle to the ventricle. In this case the auricles respond to stimuli arising in the usual site, while the ventricles obey stimuli arising in the auriculo-ventricular bundle below the node. This is well shown in Fig. 10, where the auricles are pursuing a regular rhythm of 110 per minute, while the ventricles are unaffected by the auricular contractions, and contract at a slower rate, 44 per minute. It seems clear that in such cases *two* stimulus-producing foci are exciting cardiac contractions. It is conceivable, too, that even in cases without disturbance of conduction there may be two active stimulus-producing foci, and that each may initiate cardiac contractions, the heart sometimes responding to a normal stimulus, sometimes to one which arises in an abnormal site. This condition is known as "parasystole."

In 1912 one of us [1] suggested as an explanation of certain forms of allorrhythmia that "the rhythmical production of stimuli at an abnormally irritable point in the ventricles may produce rhythmic irregularities." It is to Kaufmann and Rothberger,[2 3 4 5] however, that we owe not only the term "parasystole," as they have named the condition, but an extremely thorough investigation of the subject, both clinically and experimentally. They bring forward strong evidence to show that most of the forms of allorrhythmia, due to abnormal stimuli arising either in the auricle or in the ventricle, can be explained by supposing that two pacemakers are regulating the heart's action at the same time; that both are coincidently building up stimuli; and that whenever either is ripe to initiate a cardiac contraction and finds the heart muscle responsive a contraction ensues which originates now in one place, now in the other. They suggest, indeed, that all extrasystoles may be parasystolic.

One serious objection to this hypothesis at once arises. Immediately after a cardiac contraction all the functions of the heart muscle (except tonicity) are in abeyance. If stimuli are forming at two centres (the physiological one and another) both would be abolished after each systole and would begin to develop once more during diastole. It is clear that in this case the one which developed fastest would control the cardiac rhythm, as the other would never have a chance of acting. It is possible that this is what occurs in paroxysmal tachycardia. To surmount this difficulty it is supposed that in parasystole the abnormal stimulus-producing centre is in some way protected from the destructive effect of the physiological contraction. In our earlier paper [1] on the subject we made the tentative suggestion that "the irritable focus lies in what may be called a backwater of the primitive cardiac tissue, and that while stimuli can stream down this backwater, physiological stimuli passing down the main channel are unable to disturb the point where ventricular stimuli arise." Kaufmann and Rothberger termed this "Schützblockierung," meaning that there is an uni-directional block which protects the abnormal irritable focus.

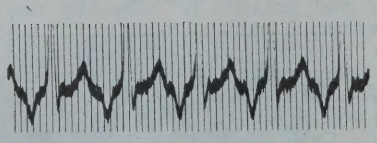
FIG. 7.



Nodal tachycardia. Termination of paroxysm. Lead II.

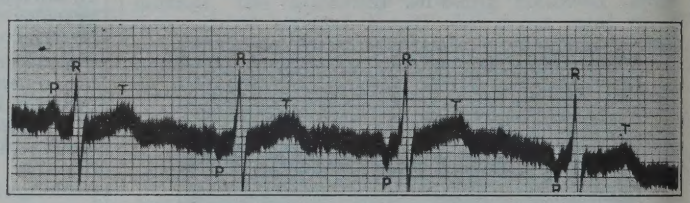
Many theories as to the causes of extrasystoles have been advanced. It is a commonplace that they may be induced by sudden emotion. They occur in acute and in chronic myocarditis. They are often produced by toxic agents such as tobacco, and Bourne [6] has suggested that in some cases a local anoxæmia, from some local narrowing of a coronary artery, may be

FIG. 8.



Nodal tachycardia. Lead II. (J. K. R.)

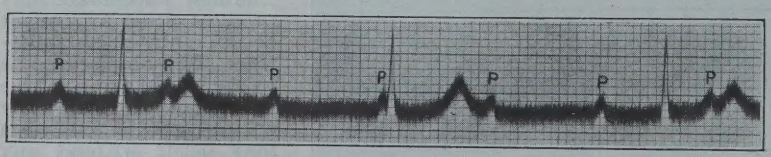
FIG. 9.



Nodal rhythm; no change in rate. Lead II.

their cause. Cowan and Ritchie [7] have argued that an undue distension of an auricular or a ventricular cavity may occasion an extrasystole. It has been shown experimentally that they may be produced by clamping the aorta or the pulmonary artery, the extrasystole arising in the left or the right ventricle according to the site of the clamp. In heart-block, both partial and complete, an extrasystole may occur if auricles and ventricles contract simultaneously. An auricular extrasystole not infrequently succeeds a ventricular extrasystole if in the former the auricular and the ventricular contractions coincide. Even an undue prolongation of diastole, with its accompanying over-distension of the cavities, may be followed by an extrasystole. Lewis suggests that just as circus movements are the cause of auricular flutter, re-entrant waves from the preceding contraction may produce them. It seems probable that the cause of an extrasystole is not always the same.

FIG. 10.



Full heart-block. Lead II.

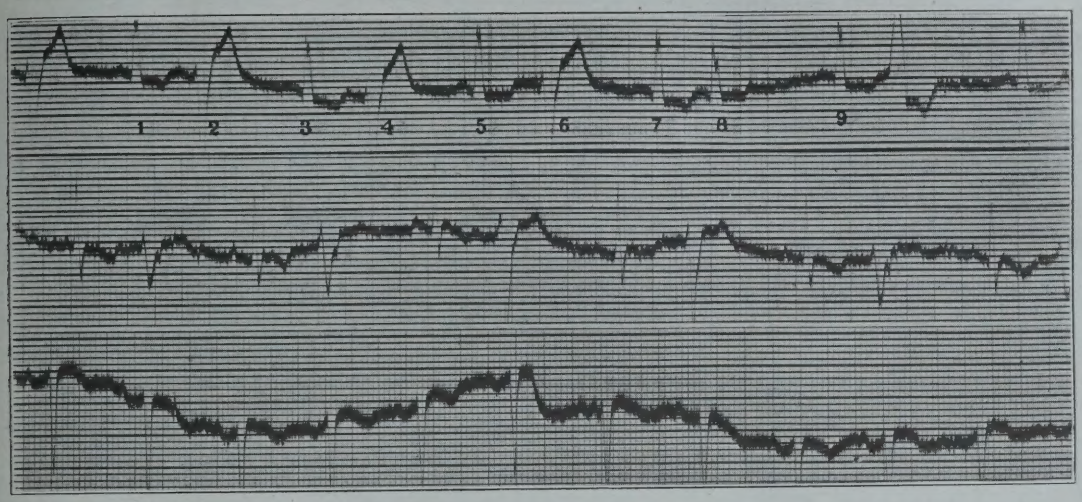
The causes of allorrhythmia, too, are still undetermined. There is an essential difference between the various theories. Parasystole presupposes that the abnormal beats originate in the heart itself, independently of external influences. Cushny has shown that this may occur in digitalis poisoning, the ventricles taking on a rhythm of their own, the rate of which increases until it approaches or exceeds that of the auricles. This is not the result of failure of conduction of the impulses from auricle to ventricle, for in that case the rate of the ventricles would be that seen in heart-block from other causes. It may, too, occur when the auricular rate is infrequent from

nhibition. The heart thus develops two rhythms: one, in the auricles, in response to impulses arising n the normal sinus pacemaker, the other, in the entricles, in response to impulses arising within the entricle itself, from an "increased spontaneity" of he ventricular muscle.

The other theories suggest that the abnormal beat s "forced," as Lewis calls it, by the preceding sinus is, however, essentially different, for in the first part a right ventricular pacemaker, and in the second part a left ventricular pacemaker, causes the regularly recurring ectopic beats.

Fig. 12 shows a typical example of parasystole. There is complete auriculo-ventricular dissociation, the auricles beating slightly less frequently than the ventricles. At first the P deflexion precedes R, and then fuses with it. Later P emerges from R, and gradually approaches T, ultimately fusing with it. The next ventricular contraction is prema-

FIG. 11.



At first the heart is responding alternately to normal stimuli and to stimuli arising in the right ventricle, then alternately to stimuli arising in the normal site and in the left ventricle. In lead III. it is responding only to normal stimuli. (J. K. R.)

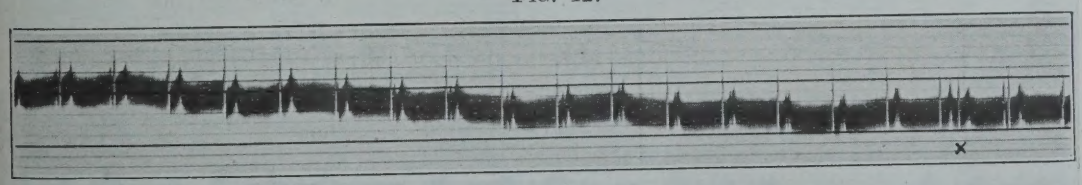
ontraction, whether from variations in the strength r the duration of the stimulus, from variations in the uration of the cardiac diastole, or from variations in ne intracardiac pressure. The most common form of llorrhythmia is a coupled rhythm, due to a regularly curring extrasystole. This is most frequently entricular in origin, though nodal and auricular forms cur. But there is nothing in a coupled rhythm to dicate the ultimate cause of its occurrence. This can nly be elucidated by the investigation of the other rms of allorrhythmia.

In the following examples parasystole seems to ford the most plausible explanation.

In Fig. 11 the ventricle is responding alternately to hysiological stimuli, beats 1–3–5–7, and to abnormal imuli arising in the right ventricle, beats 2–4–6. It seems obable that physiological stimuli are forming regularly at eir usual site all the time, but fail with the alternate ture, though the deflexions are exactly similar to those of the preceding beats. It seems probable that this beat is a response to the preceding auricular contraction, of sinus origin, for the original ventricular rate is quickly resumed. The auricular stimulus has at last reached the ventricle at a time when it was capable of responding, and a contraction ensued.

Parasystole affords an explanation of some bewildering irregularities. In Fig. 13 a ventricular extrasystole is followed by a normal ventricular complex. There succeed three similar extrasystoles, each followed by a normal complex. The rhythm of the extrasystoles is irregular, while that of the normal beats is regular. The next extrasystole occurs somewhat late, and this time without any succeeding normal beat, the sinus contraction failing as it falls due at the time of the extrasystole. The extrasystoles continue till the end of the tracing, never affording the sinus pacemaker a chance of initiating a cardiac contraction. In this

FIG. 12.



The auricles and ventricles are beating independently. When the auricular stimulus occurs at a time when the ventricle is capable of responding to it a premature ventricular contraction occurs (x).

eats to produce a contraction because the extrasystole has ready induced one, for in lead III., when the rhythm is gular, its rate is about double that of the physiological ythm in lead I. Beat 8 is again an extrasystole, but this me arises in the left ventricle. The right ventricular extrastole fails, as it is due to occur a little later (0·08″) ter the physiological beat than the left ventricular contraction, and finds the heart already in contraction and so fractory. Notwithstanding the change in extrasystole, e rhythm of the physiological beats is unaltered, and beat 9 curs punctually. The right ventricular extrasystole, hich is again due, is again supplanted by an extrasystole ising in the left ventricle, and the new pacemaker during e succeeding beats alternates with the normal sinoricular pacemaker, producing a coupled rhythm which is pparently similar to that of the first part of the tracing. It case, owing to a change in rate of the pathological pacemaker, the rôle of the normal pacemaker has been usurped by the pathological one.

If two pacemakers can influence the rhythm of the heart concurrently, it seems probable that three, or even more, may sometimes be attempting to set the pace of the heart. In Fig. 12, as we have shown, three pacemakers are active, and even the most fantastic allorrhythmias may sometimes be explained by a comparable mechanism.

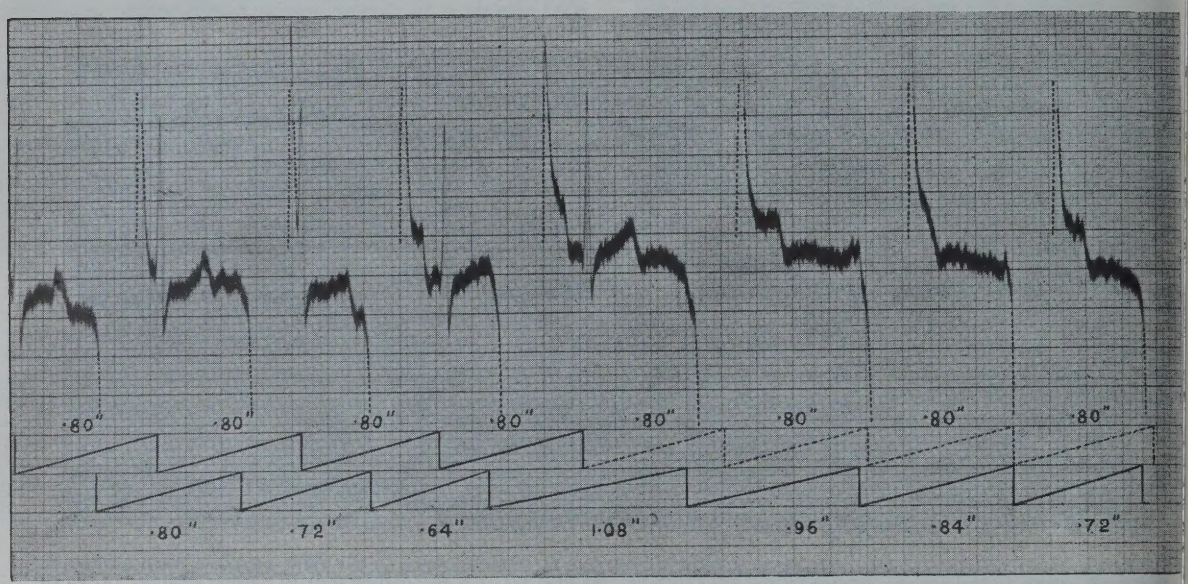
It has been contended that the long continuance of an allorrhythmia, as, for example, in coupled or triple rhythm which may continue for hours or even for days at a time, cannot be explained by parasystole,

because the small variations in the rate of the sinus contractions which so constantly occur would, sooner or later, cause the ectopic stimuli to fall within the period of a normal sinus beat, and so fail to produce a contraction. But if we believe that protective blocking is possible, and that a stimulus may remain "alive" for more than an instant of time, there is a margin during which the ectopic stimulus may produce a contraction. If this margin is exceeded the allorrhythmia ceases, but at other times the margin is sufficient to permit of the allorrhythmia continuing.

Such a condition is illustrated in Fig. 14. In this tracing the sinus rhythm is irregular, and in consequence there are occasions when regularly recurring ventricular stimuli cannot, at their onset, cause extrasystoles as the muscle is refractory. But, if the stimuli remain "alive" for more than a moment, contractions will occur when the muscle is again responsive, but at slightly irregular intervals.

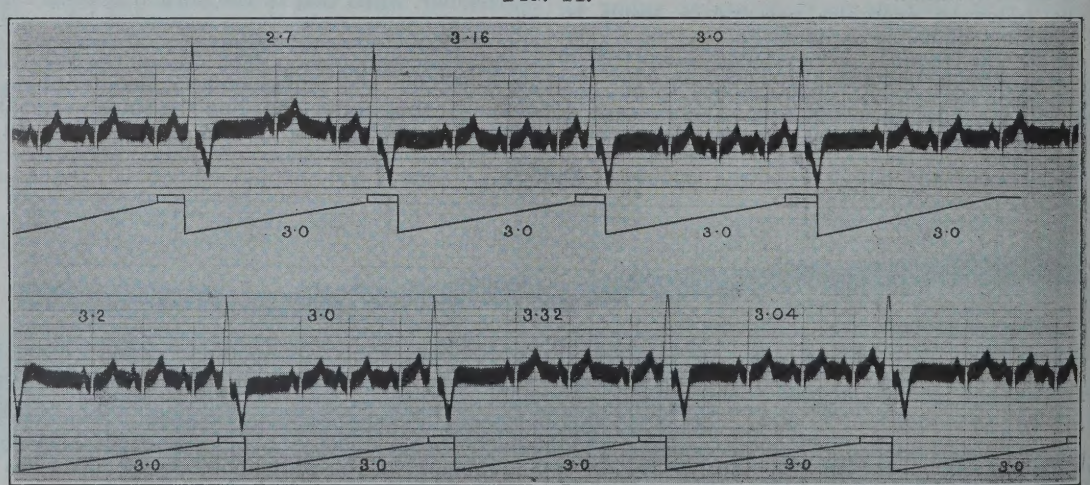
It seems probable that allorrhythmia may arise from several different causes. Glycosuria, dyspnœa, tachycardia, all own several causes, and the same is probably true of allorrhythmia. Re-entry, variations in intracardiac and intrathoracic pressures, nervous phenomena, may all, at times, play their part, but there are occasions when the most satisfactory explanation is that an abnormal pacemaker is interfering with the sinus rhythm. Sometimes the abnormal pacemaker dominates the rhythm completely (paroxysmal tachycardia); sometimes it can only occasionally interfere (extrasystole); sometimes two rhythms, that of the normal and that of an abnormal pacemaker, interplay with each other and we have the heart "serving two masters."

FIG. 13.



At first extrasystoles are followed by normal contractions. Later, owing to change in rate of production of the abnormal stimulus, physiological contractions fail to occur.

FIG. 14.



Sinus stimulus production is irregular, varying from 0·7 to 0·9 seconds. Ventricular stimuli arise regularly at intervals of 3·0 seconds, and each remains alive for 0·4 seconds.

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SOME OBSERVATIONS ON THE MORTALITY FROM RHEUMATIC FEVER AND HEART DISEASE IN LONDON.

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EVIDENCE has been adduced from the special study of series of cases of acute rheumatism by some observers, including Miller (1925), that the occurrence of this disease in children is closely associated with unfavourable conditions of life, though not apparently with extreme poverty. Benjamin (1927) concluded that rheumatism is a disease of poor people and that the incidence may well be in direct relation to the degree of poverty. Stevenson (1923) has also found that, in adult males, valvular disease of the heart, which in the great majority of cases is a sequel of rheumatic infection, is more fatal in the lower ranks of society. This finding is based on data for the several social groups tabulated by the Registrar-General for the biennium 1901–02. Nevertheless, further information on the relationship between social status with its environmental conditions and rheumatic infection and its sequelæ can be obtained from an investigation of the variations in mortality. The necessary data for the purpose were obtained from the recorded mortality for the metropolitan boroughs of London where it was possible to obtain approximate measures of varying social status with which to correlate the mortality; also to determine whether the association were of a similar degree and kind in the two sexes.

Analysis of Data and Discussion.

Unfortunately it is only possible to obtain an approximate indication of the prevalence of acute rheumatism in the several metropolitan boroughs from the recorded mortality-rate. In the absence of any fairly extensive records of cases (of which there is no prospect in the immediate future), it is difficult to refute as it is to support the view that there is a general parallelism between mortality and prevalence. For lack of any reliable evidence to the contrary it has been assumed that the death-rate does at least provide a rough index of the prevalence of the disease, and the relative incidence of acute rheumatism in the metropolitan boroughs so far as it can be expressed by the standardised mortality-rates in persons at all ages for the decade 1911–20 is shown in Map I. The mortality is heaviest in Deptford, Stepney, Bermondsey, Wandsworth, Hackney, and Bethnal Green, all of which districts, except the last, are adjacent to the river Thames for part of their extent, but the rates are also relatively high in Hampstead, Islington, and Stoke Newington. The lowest mortality-rate occurs in Kensington, where relatively low rates are also found in Chelsea, Westminster, and Woolwich, as well as in St. Pancras and Camberwell. It is interesting to compare this map with that given by Shrubsall (1925), showing the distribution of cases of children suffering from rheumatic heart disease who were attending the L.C.C. special schools in 1925. His map indicates the aggregation of cases in the vicinity of the Thames and along the lines of the alluvial valleys marking the ancient courses of rivers. The comparison shows that, while relatively high death-rates are found in some districts in which there is evidence of concentration of juvenile cases, there does not appear to be any striking coincidence in the two distributions.

If, as is generally supposed, a relatively unfavourable environment is an important predisposing factor in acute rheumatism, and if the mortality from the disease may be accepted as an index of the prevalence, then some indication of the influence of this factor might be expected in those boroughs in which the general social conditions vary considerably. Of the different criteria of varying social status that are available for the metropolitan areas, three have been selected—namely (1) the degree of overcrowding or the proportion of the population living more than two per room; (2) the proportion of domestic servants per 100 private families; and (3) the mean infantile mortality-rate. The correlation coefficients between the standardised mortality-rate from acute rheumatism in the metropolitan areas and these indices of social status are shown in Table I. The standard errors of the coefficients are

TABLE I.—*Showing the Correlations between the Standardised Rheumatic Fever Death-rate (S.D.R.) in Persons at all Ages in the Metropolitan Boroughs of London for the Decade 1911–20 and Various Indices of Social Status.*

Variables.	*r.*	
	Males.	Females.
S.D.R. rheumatic fever and index of overcrowding or proportion of population living more than two per room	0·080±0·188	0·253±0·177
S.D.R. rheumatic fever and mean infantile mortality-rate	0·312±0·171	0·345±0·166
S.D.R. rheumatic fever and proportion of domestic servants per 100 private families	−0·253±0·178	−0·294±0·173

such that little emphasis can be laid on the apparent existence of some slight association between the mortality from acute rheumatism and general exposure to unfavourable conditions of life seen in this table. It seems worthy of note that the proportion of overcrowding seems to be least closely associated with the rheumatic fever mortality-rate. Miller (1927) has come to the conclusion that overcrowding is not a factor of prime importance in the production of the disease in children from the fact that, although rheumatism is a disease of the poor, it is less common in the poorest than in the stratum above them.

Relationship of Rheumatic Fever to Heart Disease.

The relationship of the rheumatic fever mortality to the mortality from heart disease at the several ages in the different areas of London may now be examined. Various observers have tried to assess the proportion of fatal organic heart disease that may be described as primarily due to rheumatic infection. The estimates very considerably, but it has recently been suggested that there is a reasonable basis for the belief that at least half the total recorded mortality from heart disease is rheumatic in origin. In a recent report of the Ministry of Health, Dr. Glover (1927) has come to the conclusion that 40 per cent. is probably a safer figure. In London, in the five years' period 1921–25, 56 per cent. of the recorded mortality from heart disease in all its forms, and 44 per cent. of that registered as valvular disease of the heart, occurred at ages over 65. It is in this later period of life that degenerative or senile changes account for a relatively large proportion of the recorded mortality from heart disease, and it is also at these ages that heart disease is most often stated as a cause of death in an attempt to give a precise diagnosis to a terminal and often indefinite condition.

Although a fairly large proportion of the fatal heart disease in this later period of life is probably of rheumatic origin, the proportion at the earlier ages is undoubtedly considerably greater, and it is important therefore to compare the prevalence of acute rheumatism with the mortality from heart disease at these earlier ages. The index of regional rheumatic prevalence—i.e., the standardised mortality from rheumatic fever—has therefore been correlated with the mortality from heart disease in the separate sexes in certain age-groups for the two periods of years 1911–14 and 1919–25. The correlation coefficients are shown in Table II. For the period 1911–14, a small positive correlation is apparent

between the rheumatic fever death-rate and the death-rate from heart disease at ages under 15 and at ages 15–24, but for the other age-groups the coefficients are negative and insignificant. In females the coefficients are positive, but insignificant at all the ages. For the period 1919–25 the coefficients

TABLE II.—*Showing the Correlations between the Standardised Rheumatic Fever Death-rates in Persons at all Ages in the Metropolitan Boroughs of London for the Decade 1911–20 and the Mortality from Heart Disease at Different Ages in each of the Periods 1911–14 and 1919–25.*

Variables.	*r*.			
	Males.		Females.	
S.D.R. rheumatic fever and S.D.R. heart disease at ages—	1919–25.	1911–14.	1919–25.	1911–14.
Under 15 years ..	−0·079± 0·188	0·226± 0·179	0·118± 0·186	0·118± 0·186
15–24 years ..	0·200± 0·181	0·357± 0·165	0·446± 0·151	0·141± 0·185
25–44 „ ..	0·100± 0·187	−0·107± 0·187	0·405± 0·158	0·187± 0·182
45–64 „ ..	0·555± 0·131	−0·256± 0·177	0·264± 0·176	0·083± 0·188
65 years and upwards	0·023± 0·189	−0·258± 0·176	0·193± 0·182	0·028± 0·189
At all ages ..	0·134± 0·186	−0·150± 0·185	0·338± 0·167	0·102± 0·187

for all the age-groups in males and females are positive, except at ages under 15 years in males, but it is only at ages 45–64 in males and at ages 15–24 and 25–44 in females that they are of sufficient magnitude in comparison with their standard errors to indicate that any importance can be attached to them. It seems worthy of remark that the correlation between the rheumatic fever death-rate and the death-rate from heart disease at ages over 65 years is usually smaller than at the earlier ages, although little importance can be attached to this feature. The results in the table thus fail to indicate clearly that the mortality from heart disease at any particular age period is especially associated with the prevalence of rheumatism in the different areas.

Social Status and Heart Disease.

The relationship of social status to the mortality from heart disease at the different ages will now be examined and discussed. Correlation coefficients were calculated for the death-rates in the two periods 1911–14 and 1919–25 and the same three indices of the general level of the social condition of the residents in the metropolitan areas already described. In order to economise space the coefficients are not tabulated, but although certain anomalies occur, the results obtained from the three criteria appear to be in general agreement, and may be stated very briefly. The mortality from heart disease seems to be positively correlated with a relatively unfavourable environment, but the degree of association varies at different ages. At the ages 15–24, 25–44, and 45–64 the correlation is quite definite, varying from 0·5 to 0·8 in all the groups except that relating to the domestic servant index and male mortality, which will be referred to later. There is, however, fairly clear evidence that the mortality at ages exceeding 65 years has, as might be expected, no obvious relation to environmental conditions as measured by any of the criteria adopted. There is also a definite indication that in males the mortality at ages under 15 years in both periods is less closely associated with environmental conditions than is the mortality at the succeeding ages. The coefficients obtained from all three indices and the mortality in females under 15 years in the period 1911–14 suggest a like conclusion, but the coefficients for the period 1919–25 suggest that the association at ages under 15 years is nearly as intensive as at the higher a At the intermediate ages the correlation coeffici for females appear to be, on the whole, higher t the corresponding coefficients in males, but differences do not appear to warrant the conclu that the response to environmental condition more definite in females than in males. It is doub true that the female population is more continuo exposed to unfavourable home conditions, but disadvantage in this respect is probably cou balanced by the greater exposure of members of male sex to strain and unfavourable conditio their occupations. The correlation of the propo of the domestic servants index and the male mort at the different ages does not provide the re series of coefficients shown for the remaining ind but, if the size of the coefficients in this instance not lend much support to the inferences drawn the other indices, the general run of their sign the intermediate ages may be said, at least, nc contradict them. The correlation between the s condition of the areas and the mortality from h disease appears to be practically equivalent at ages 15–24, 25–44, and 45–64, and generally intensive than that between the mortality rheumatic fever and the mortality from heart di at any of the corresponding ages.

In previous papers (Young, 1921 and 1925) writer has shown that the rheumatic fever mort in the county divisions of England and Wal positively correlated with the amount of ra and negatively with the mean temperature—in words, is directly associated with the general preva of damp and cold. In the county areas the am of organic heart disease is also definitely assoc with the amount of rheumatic fever. The divi of the metropolis, however, must be regarde subject to considerably more uniform conditio rainfall and temperature than the different are the country, and consequently it is not surpri that the mortality-rate from rheumatic fever s somewhat less variation in the metropolitan than in the county areas, and that a less de association between it and the incidence of disease appears to be present in the former th the latter.

Conclusions.

Assuming the rheumatic fever mortality-ra be an approximate index of rheumatic preval there is a suggestion that the local incidence o disease has a slight but direct relation to the s status of the metropolitan areas and shows a ge tendency to be more common in the areas wher conditions of life are least favourable. The mort from heart disease at the ages in which the majority of the cases are undoubtedly rheu in origin shows apparently a still closer relatio than the prevalence of rheumatism to those env mental circumstances implied by difference in ge social status. There is a suggestion that the mor from cardiac disease in females is more closely re to environmental conditions than in males, whether this is real or not, and, if real, whether attributable to a more continuous and prol exposure of the female population to delete influences in unhealthy homes, is a question on it is difficult to hazard an opinion.

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THE FUNCTIONS OF THE LIVER

AS AFFECTED BY MALARIA INDUCED IN GENERAL PARALYTICS.

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During last year laboratory tests were carried out Bexley Mental Hospital with a view to investiting derangements of hepatic function occurring the course of artificially induced malaria amongst neral paralytics. The vestigations comprised eries of lævulose tolerce curves, van den rgh reactions, and some scellaneous tests. In , 107 lævulose tolerance ves were obtained m patients undergoing larial treatment, and curves from patients h proved or suspected patic derangements to other causes.

esults with Lævulose Tolerance Curves.

he lævulose tolerance ves were obtained in following way:—

fasting blood-sugar imen was taken at ut 9 A.M. and then 40 g. ævulose in 8 oz. of water n by mouth. Bloodar specimens were then ected ½ hour, 1 hour, ours, and 2½ hours after lævulose feed. It was d inconvenient (and ecessary for the determination of a representative curve) ollect a specimen two hours after the feed, though for e of the curves the two-hour specimen was collected.

The analyses were done in the afternoon or evening, and the Folin-Calvert colorimetric method was used throughout.

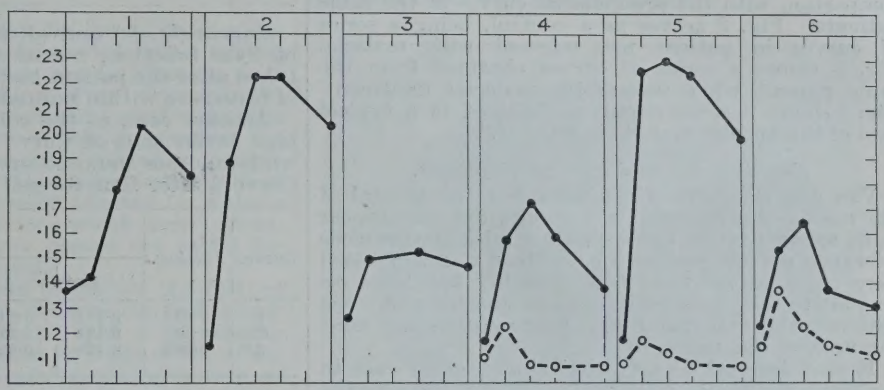
Lævulose tolerance curves were done on patients: (*a*) before inoculation with malaria either by mosquito bite or blood inoculation; (*b*) during the course of the malaria; (*c*) after recovery from malaria; (*d*) during and after malarial relapses; and (*e*) suspected of gross liver disease.

The cases investigated were: (*a*) sixteen general paralytics, who were given malarial treatment; (*b*) one tabetic, who was given malarial treatment; (*c*) four cases of gross liver disease (comprising two of cirrhosis, one of acute yellow atrophy, and one of secondary malignant growths); and (*d*) six general paralytics, who were not given malaria (controls).

In every malarial case before the end of the treatment the curves were of the type indicating some hepatic insufficiency, and in many cases the curves became abnormal after the first or second rigors. In a few cases the curves indicated extreme hepatic insufficiency, and such patients remained critically ill for some days after the malaria was stopped by the administration of quinine. One such case died eight days after the malaria had been stopped. At autopsy there was found (in addition to a terminal broncho-pneumonia) an acute yellow atrophy of the liver. It was the occurrence of this condition in two previous fatal cases which led to the present investigations.

In most cases the curves became normal soon after the malaria had ceased, but in some of the more serious cases of apparent hepatic insufficiency, as demonstrated by the curves, the return to normal was

FIG. 1.



Shows six curves. Nos. 1 and 2 were taken from the same patient, one with severe cirrhosis of the liver; the condition was confirmed at autopsy a few days after the date of the last curve. No. 3 was taken from another case of cirrhosis of the liver, also confirmed at autopsy. Nos. 4, 5, and 6 were from three cases of G.P.I. towards the end of their malarial treatment. No. 4 curve was taken from a patient on the 13th day of the infection after five significant temperatures over 103° F. No. 5 curve was taken from a patient on the 21st day of the infection after ten significant temperatures over 103°. No. 6 curve was taken from a patient on the 17th day of the infection after nine significant temperatures over 103°. The dotted lines are curves taken from patients before commencement of malarial treatment.

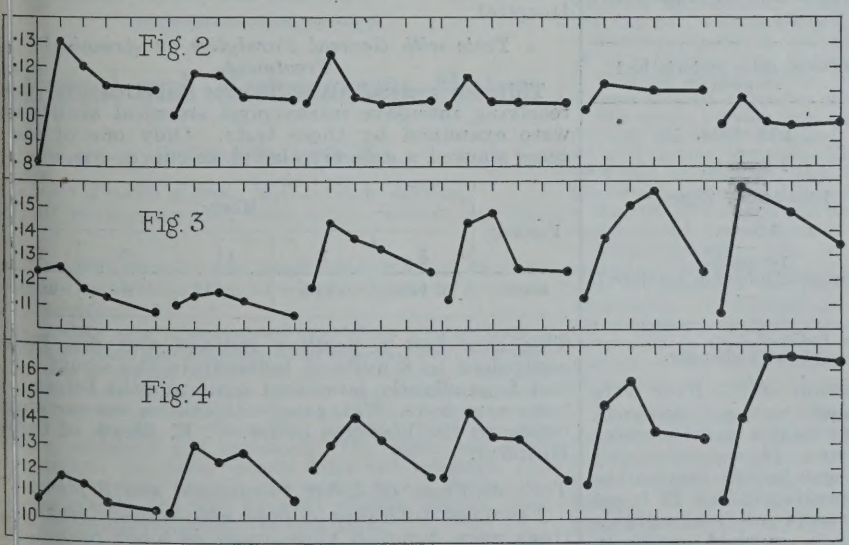


Fig. 2.—Series of curves from a patient who was bitten by malarial mosquitoes after the first curve had been taken, but who did not develop malaria. Curves were taken on the 3rd, 5th, 7th, 9th, 13th, 15th, 20th, 24th, and 34th days after the unsuccessful attempt at infection. It is unnecessary to reproduce more than six of these curves as they show no appreciable variation.

Fig. 3.—Series of curves taken from the same patient three months later. He was again bitten by malarial mosquitoes and curves taken on the 4th, 9th, 18th, 21st, 25th, and 29th days after infection. He developed his first significant temperature on the 15th day and had in all 11 such temperatures. Quinine was given on the 26th day.

Fig. 4.—Series of curves in a typical case taken on the day before infection and then on the 7th, 12th, 17th, 22nd, and 29th days. The patient developed his first significant temperature on the 11th day and in all had eight significant temperatures. Quinine treatment was commenced on the 23rd day.

much slower. In four cases who had relapses some time after their period of treatment, marked hepatic insufficiency was indicated by curves taken during the relapses. The curves obtained from patients with gross liver disease were comparable with those in the malarial series (see curves). The case with secondary carcinomatous deposits in the liver showed a normal curve, there being sufficient liver tissue to deal with 40 g. of lævulose.

It is scarcely necessary to tabulate all the curves obtained in these investigations, as Figs. 1, 2, 3, and 4 are sufficiently representative. Fig. 1 shows the similarity between curves obtained in gross organic disease of the liver (curves 1, 2, and 3) and curves obtained towards the end of malarial treatment (curves 4, 5, and 6). The later curves also allow of comparison with the pre-malarial curves in the same patients. Fig. 2 serves as a control, being a series of curves in patient not infected with malaria. Fig. 3 shows a series of curves obtained from the same patient while undergoing malarial treatment. Fig. 4 shows a series of curves obtained in a typical case of therapeutic malaria in a G.P.I.

Results with van den Bergh Reactions.

Van den Bergh reactions were done on several of the cases. As, however, the results did not appear to be as sensitive as those obtained with the lævulose tolerance curves, and as 5 c.cm. to 8 c.cm. of blood were required for each test (possibly too large an amount to take frequently from an anæmic and toxic patient), the van den Bergh reaction was not done throughout the series.

It is of interest to note that almost every case in the series developed conjunctival icterus towards the end of the malaria, while several of the patients had appreciable jaundice.

In the few cases (three) in which the van den Bergh reaction was done before the inoculation of malaria the reaction was negative. Eight tests were done on patients during their malarial period, and in each case the reaction was either an indirect positive or biphasic one. The biphasic reaction was present in those patients who had appreciable jaundice.

Dr. R. Armstrong, of Bexley Mental Hospital, kindly undertook to do some van den Bergh reactions on general paralytics undergoing malarial treatment, with the following interesting results :—

Patient.	Before inoc.	After 3 rigors.	One week after malaria had stopped.
A	Di.	—	—
	I.	2·5 units.	1·75 units.
B	Di.	—	—
	I.	3·5 units.	2·5 units.
C	Di.	—	—
	I.	4·5 units.	Died after 5 rigors.*
D	Di.	—	—
	I.	2·5 units.	1 unit.
E	Di.	—	—
	I.	4 units.	1·5 units.
F	Di.	—	No malarial infection developed.
	I.	—	—

Di. = Direct; I. = Indirect.
* The liver and kidneys showed fatty changes.

Tests for the antitoxic function of the liver were carried out, but satisfactory results were not obtained. Sodium salicylate was given by mouth and the urine then examined for conjugated glycuronates by Tollen's method. The failure was largely due to the difficulty of obtaining representative (24 or 12 hour) specimens of urine from the patients and from suitable controls. Urobilin was found in marked excess in the urine of most of the patients while they were having malarial treatment. This test, however, was not done systematically, and the exact numbers have not been recorded.

Tests on General Paralytics Treated with Therapeutic Relapsing Fever.

In addition to these investigations similar tests have subsequently been carried out on seven general paralytics who were given relapsing fever for therapeutic purposes. (The patients were injected with emulsions of blood containing the spirochæte of West African relapsing fever, *Spiroschaudinia duttoni*. In none of these cases did the curves indicate marked hepatic defect. One case was followed throughout his treatment and the following curves were obtained:

—	Fasting.	Hours.				
		½	1	1½	2	2½
(*a*)	0·107	0·113	0·101	0·101	—	0·096
(*b*)	0·104	0·135	0·127	0·124	—	0·108
(*c*)	0·102	0·138	0·134	0·117	—	0·113
(*d*)	0·105	0·134	0·122	0·109	—	0·093
(*e*)	0·101	0·124	0·123	0·113	—	0·103
(*f*)	0·096	0·119	0·118	0·101	—	0·095

Curves (*b*), (*c*) and (*d*) indicate slight impairment of liver function, but the later curves (*e*) and (*f*) taken after the patient had had three prolonged spells of fever, are within normal limits.

Another case, at the conclusion of four periods of high fever, showed Curve 1 in the following table, while another showed Curve 2 after three fevers and Curve 3 after four fevers.

Curve.	Fasting.	Hours.				
		½	1	1½	2	2½
1	0·088	0·115	0·112	0·105	—	0·09
2	0·103	0·116	0·119	0·120	—	0·10
3	0·109	0·120	0·122	0·119	—	0·10

These curves, if they show any defect at all, show it to be incomparably less than was found in the malarial patients.

Three of the relapsing fever cases showed, at some time in their treatment, very faintly positive indirect van den Bergh reactions. Tests in the other cases were entirely negative. Urobilin and urobilinogen were not found in pathological excess in any of the urines examined.

It was possible to perform these tests through the kindness of Dr. F. L. Golla, and the medical superintendent and Dr. W. A. Caldwell, of Banstead Mental Hospital.

Tests with General Paralytics on Arsenical Treatment.

Thirteen general paralytics or tabetics who were receiving intensive intravenous arsenical medication were examined by these tests. Only one of the cases showed a defective lævulose curve—viz. :—

Fasting.	Hours.				
	½	1	1½	2	2½
0·108	0·140	0·142	0·135	—	0·115

This case had a positive indirect van den Bergh equivalent to 8 units of bilirubin in the serum. He had been slightly jaundiced some months before the tests were done. This case, with others, was examined owing to the kindness of Dr. V. E. Lloyd, of Guy's Hospital.

Tests on Cases of Lobar Pneumonia and Septicæmia.

Lævulose tolerance curves and urinary examinations were done on three cases of lobar pneumonia and one severe septicæmia. From the pneumonia cases almost normal curves A, B, and C were obtained, as shown in the table below.

The septicæmic case upon whom two curves were done was critically ill for three weeks; she had many rigors each day, and eventually died. Permission for an autopsy was refused. Her curves are given below, D and E. They show marked liver defect. Urobilin and urobilinogen were present in pathological excess in the urine only in the septicæmic case.

hese cases were examined through the kindness of
ie medical superintendent and Dr. Norcliffe Roberts,
St. Giles's Hospital, Camberwell.

—	Fasting.	Hours.			
		½	1	1½	2½
5th day of pyrexia .	0·104	0·134	0·117	0·115	0·107
9th day of pyrexia .	0·111	0·128	0·123	0·117	0·112
Day after crisis .	0·096	0·127	0·125	0·107	0·103
—	0·100	0·142	0·136	0·133	0·123
—	0·111	0·139	0·156	0·143	0·133

Conclusions.

The conclusions which may be drawn from these vestigations are: (1) Lævulose tolerance curves, pecially when done in series, are satisfactory tests detecting and estimating liver derangement. (2) The van den Bergh reaction and tests for urobilin d urobilinogen in the urine help to confirm the ults obtained from lævulose tolerance curves. (3) The tests reported in this paper indicate that liver is much more severely affected in malaria n it is in the other conditions which were investiged. (4) Lævulose tolerance curves are useful for ntrolling therapeutic malaria.

No attempt has been made to discuss the history the lævulose tolerance test, because the test is now well established as to make such a proceeding te unnecessary. No mention is made of the effect the malaria upon the patients' mental condition, as h observations would be beyond the scope of this mmunication. The malaria used was a pure benign tian strain obtained from Colonel S. P. James's oratory at Horton Mental Hospital.

My thanks are due to the medical superintendent permission to publish these results, to Dr. John nder for his advice and assistance, to the assistant dical officers of Bexley Mental Hospital for permission to examine their cases, to Messrs. Lawford, ith, and Cliffe for their help in the collection of ecimens, and to Dr. F. L. Golla and Captain S. A. an for their advice and guidance.

Clinical and Laboratory Notes.

A CASE OF ASTHMA.

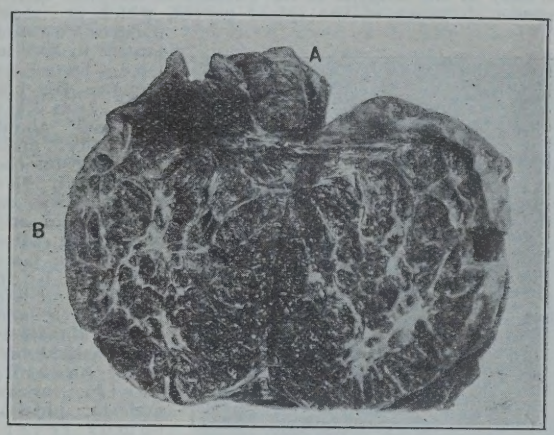
By DAVID PERK, M.B., CH.B. LEEDS,
ASSISTANT MEDICAL OFFICER, WEST RIDING MENTAL HOSPITAL.

ASTHMATIC attacks are associated with a number morbid conditions, two of which coexist in the case described.

he patient was admitted to the West Riding Mental pital 26 years ago suffering from insanity with epilepsy, became physically feebler and more and more demented advance in years. Her history was uneventful until months before her death, at the age of 65, when one night had an attack of "asthma," during which she was edly dyspnœic and cyanosed. Her pulse was weak irregular; her heart sounds faint and irregular, and e was a systolic bruit in the mitral area. During the wing months she had frequent similar attacks, each k lasting intermittently for two days.

st mortem, in addition to marked pathological changes he heart, the entire left lobe of the thyroid was found e replaced by a tumour which must have exerted derable pressure on the larynx and trachea during life. heart weighed 180 g., and was much contracted. The ce was wrinkled, and the coronary arteries were very ious. There were atrophic changes in the left ventricle uced by an extreme degree of mitral stenosis. The y was greatly diminished, the papillary muscles were shrunken, the mitral valves were united to form a nhole orifice which led into a funnel, formed by the n of the upper ends of the chordæ tendineæ. Microscopically, the muscle-fibres were shrunken, and contained an excessive amount of yellowish granular pigment.

The thyroid tumour extended from the laryngeal prominence to the upper border of the manubrium sterni and clavicle. It pressed against the lateral surface of the larynx and upper rings of the trachea, arching them towards the right side, and almost occluding the lumen, so that this portion of larynx and trachea was distorted into the shape of a scimitar. The common carotid artery was arched outwards by the tumour, which measured 3½ in. by 2¼ in., and weighed, when shelled from its fibro-muscular capsule, 130 g. It was roughly spherical and crudely and irregularly lobulated, with a smooth, shiny surface of sea-blue tint, interrupted in places by blood-vessels and white connective tissue bands. It contained a core of calcified fibrous tissue and some gelatinous fluid which coagulated very readily. Minute jelly-like particles, which dissolved on pressure, were suspended in the fluid. They were of a mucinoid nature, and stained well with Bismarck-brown.



A.—Solid portion of tumour; complex adenoma.
B.—Cystic portion of tumour; cystic adenoma.

The cut surface shows that the tumour is composed of two portions, a cystic and a solid portion. The roughly spherical solid lobule had no connexion with the rest of the tumour, and was merely enclosed by a continuation of the capsule surrounding the latter; on section it had a faintly whorled appearance. Embedded in its surface, beneath the capsule, were some plaques of calcareous material.

Microscopically, it resembled a complex adenoma, part of it exhibiting the features of a fœtal type, and part of it those of an adult type of adenoma. The fibrous tissue stroma showed extensive calcareous deposition.

The cystic portion was traversed by glistening strands of fibrous tissue of irregular widths and directions, which divided it into numerous loculi filled with a multi-coloured jelly-like substance. The fibrous network was in many places calcareous, and in a pocket of the capsule there was a deposit of heterotopic bone, in the shape of an incisor tooth, about half an inch in length.

Microscopically, the loculi which contained colloid material were lined by a single layer of cubical epithelium, with a tendency to proliferate freely. This caused a duplication or multiplication of the lining layer, and in many places a heaping up of the cells, some of which were embryonic or degenerate in type, ovoid or flattened. Stained sections of the tooth-shaped structure showed the presence of lacunæ and canaliculi arranged in Haversian systems.

It would appear, therefore, that the "asthma" may have been either (*a*) an expression of failure of cardiac compensation, as is strongly suggested by the post-mortem findings in the heart, supported by the history of cyanosis and cardiac irregularity accompanying the paroxysms of dyspnœa, and a systolic mitral bruit; or (*b*) a pressure-symptom of the thyroid tumour. Severe pressure on the larynx and trachea, or on the recurrent laryngeal nerve, might have produced the attacks of dyspnœa and cyanosis, while pressure on the vagus nerve would explain the irregularity of the heart associated with the attacks.

My thanks are due to Prof. M. J. Stewart for his kind advice, and to Dr. S. Edgerley, the medical superintendent, for permission to publish the notes.

TWO CASES OF NEURINOMA.

BY J. HARGREAVES ROBINSON, L.A.H. DUB., L.M.R.C.P. IREL.,
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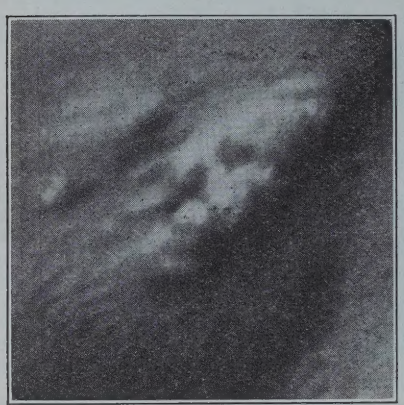
THE two cases here described fall into that heterogeneous group of conditions known as "neurinomata." The first one is a typical example of neurofibromatosis as described by von Recklinghausen; the second had a neoplasm, suggesting the condition called by Mott "pachydermatocele."

CASE 1.—A man, aged 31, noticed at the age of 17 two small nodular swellings in the course of the intermediate cutaneous nerve sheath. Three years later he noticed more swellings. He now has many neurinomata scattered profusely in the sheaths of the cutaneous branches of the posterior divisions of the spinal nerves, which are most numerous and largest in size in the lumbar region. He has 465 moles scattered about the body, most prevalent on the arms, in the axillæ, and on the scrotum and chest. He states that he has always been healthy, and is a non-smoker and total abstainer. His medical history records benign tertian malaria, phlebotomus fever, and an *Entamœba histolytica* infection. The patellar reflex is ±++ slightly more marked on one side than on the other. His fingers are tremulous, and muscular fibrillation of a facial muscle was noticed during examination. There are slight alterations in epicritic and protopathic sensibility. Mentally he could not be classed as a typical normal individual, but would be described by the alienist as of the mattoid type. He admits, after an obvious mental effort, that what he describes as "night starts" occur just at the moment when he is falling to sleep. He gives the impression of making a special effort to answer a simple question.



Inguinal swelling in Case 2.

CASE 2.—A healthy young man first noticed during the year 1919 a swelling on the lower part of the abdomen. He states that it has very slowly progressed in size, and has never been painful, even on pressure, but that friction against the clothing has been rather uncomfortable. He has never noticed any other swellings anywhere on his body, and does not know of any other member of his family having had anything of the kind. During conversation he gives the impression that attention and conation are rather more marked than usual, and he speaks rather slowly. On the lower surface of the abdomen there is a large, sessile, cutaneous neoplasm, slightly pendulous, and freely movable on the aponeurosis, excepting at a small area towards the inner border where movement is not so free. The neoplasm is firm in texture, insensitive to pressure, and clinically suggestive of the pachydermatocele of Mott. The inguinal lymphatic glands are normal in size. There is a wide band of discoloration of the skin in the middle line extending from the ensiform cartilage to the pubes. No other swellings can be discovered; 53 small moles are scattered about the body. Nerve sheaths are not palpable. I removed the growth, and it has been described as follows: "The large mass of tissue is composed of very cellular fibrous tissue, with little tendency to a whorled arrangement in most places. There are, however, areas in which the cells form small concentrically laminated masses. No epithelium is seen covering this mass. The structure appears to be that of neurofibromatosis."

Both cases are doubtless lesions of the endoneural connective tissue, and the association of multiple moles, pigmentation of the skin, and neurofibromatosis as described by Soldau are evident.

A CASE OF INTRACRANIAL NEOPLASM WITH UNUSUALLY RAPID DEVELOPMENT OF SYMPTOM

BY JOHN INKSTER, M.D. ABERD., M.R.C.P. LOND., D.P.H. OXF.,
HON. CONSULTING PHYSICIAN, STOCKTON AND THORNABY HOSPITAL; HON. PHYSICIAN, NORTH ORMESBY HOSPITAL, MIDDLESBROUGH.

THE following case is of interest in that rapidity development of symptoms led to an error of diagnos

The patient, a man aged 38, had nasal polypi removed July 7th, and during the operation pus was found in bo antra. The antra were drained, and he was discharged fr hospital apparently well. He should have reported hospital on the 16th, but was unable to do so, as he w suffering from septic tonsillitis. A week later, havi recovered, he presented himself for examination, and t condition of the nose and throat was satisfactory. remained well until August 13th, when he noticed that had difficulty in playing the piano with the right ha The difficulty increased, and power was completely l in the right upper extremity. Two days later he noti that he was dragging the right foot, and power was l in the right lower extremity. On the following day he h involuntary movements of the upper and lower extremiti although he had no power of voluntary movement. Th movements were so severe that they interfered with sle and his friends were unable to hold the arm and leg st He had had no headache, but had vomited once.

When seen on August 20th he had complete paraly of the right upper extremity, almost complete paraly of the right lower extremity, and slight weakness of the ri side of the face. The pupils were equal, and reacted norma to light and accommodation. There was no nystagm and the eye movements were normal. Examination of fundi showed neither optic neuritis nor any other abn mality. He was unable to close the right eye complet On the right side the triceps, supinator, and knee- and ank jerks were all exaggerated, and there was ankle-clon The plantar reflex was extensor on the right side and fle on the left. Sensation was slightly blunted in the ri arm and leg. Speech and mental condition were unaffect There was no incontinence and no retention of urine.

The heart, lungs, and abdomen, except for an old appen ectomy scar, showed no abnormality. The urine normal. Pulse-rate was 72, and temperature was 98·4°. A diagnosis of intracranial abscess was made, and he admitted to North Ormesby Hospital. A blood co showed 10,000 white cells per c.mm., and a normal differen count. It was thought that the position of the abscess just subcortical under the middle of the motor area, an skiagram showed an indefinite shadow in this region. Th was no development of symptoms nor of physical si except that he vomited twice.

On August 31st Mr. J. B. T. Keswick trephined c the middle of the motor area on the left side, and explo the underlying brain, but no pus was found. The oper in the skull was enlarged and the surrounding brain explo but without success. There was practically no cha until Sept. 4th, when respiration began to fail. Pat became cyanosed, and there were râles over the whol both lungs. The temperature rose to 100·6° F. and pulse-rate to 148, and he died on Sept. 6th.

Post-mortem examination showed no meningitis, and brain appeared normal on external examination, ex that there was hæmorrhagic discoloration of its sur under the opening in the skull. Section revealed a la soft, chocolate-coloured tumour in the left cerebral he sphere. It was irregularly fusiform in shape, with its l axis parallel to that of the cerebral hemisphere, and widest part in the region of the Rolandic area. It exten for about an inch and a half forward, and for abou inches backward from this area. It lay mostly in the w matter, but extended into the grey matter of the co in the middle of the motor area. It was not encapsula Unfortunately, as a report was required for a coror inquest, the brain had to be cut without being harde and so accurate observation of the relationships of tumour could not be made. Histological examina showed the tumour to be a gliosarcoma. There was fibrous adhesion of the visceral to the parietal pleura the greater part of the right lung, and there was conges of the bases of both lungs. The cæcum was adherent to anterior abdominal wall by fine fibrous adhesions where appendix had been removed 20 years previously. There no pus in the ethmoidal cells. All other organs were heal

Commentary.

In this case the onset was not sudden enough the lesion to be embolism or hæmorrhage, and th

as no evidence of circulatory failure to suggest rombosis. At the same time the development of ie paralysis seemed too rapid to be caused by a oplasm. The history of a recent operation for a ptic nasal condition followed by septic tonsillitis as strongly suggestive of a metastatic abscess. ie occurrence of what from the description appeared be Jacksonian convulsions suggested that the sion was in contact with the cortex, but the extent the paralysis prepared one for a deep lesion in the ternal capsule. The rapidity of onset and the history recent nasal sepsis were misleading, but the cksonian convulsions led to the localisation of, any rate, a part of the lesion.

It is of interest that optic neuritis and headache ere absent and that vomiting was infrequent, in ite of the large size of the tumour. Perhaps this explained by there being little, if any, increase in e intracranial pressure. The brain when removed d not appear larger than normal, nor did the left le seem larger than the right.

I am indebted to Dr. W. H. Mackinlay for the ivilege of seeing this case, and to my colleague, c. Keswick, for undertaking the operation.

Medical Societies.

NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

A MEETING of this Society was held at Liverpool on t. 28th, Prof. FLETCHER SHAW (Manchester), the esident, in the chair, when Mr. ST. GEORGE WILSON iverpool) read a paper on

Twilight Sleep.

e said that he had investigated twilight sleep opolamine narcosis) on the lines recommended by e committee appointed by the Section of Obstetrics d Gynæcology of the Royal Society of Medicine in 17. He had treated a series of 32 cases (16 primiparæ d 16 multiparæ). He considered his results under e following headings :—

Precautions taken to Exclude Sensory Impulses.—A iet room was selected which could be darkened. tton-wool soaked in oil was placed in the patient's rs. She was kept in bed and discouraged from king, and conversation was carried on in whispers. bservations were made, and the delivery carried out, the light of a small shaded lamp.

Time of Injections, Drugs Employed, and Doses.—primiparæ injections were begun when the cervix s dilated to the size of two fingers and in multiparæ en labour had definitely commenced. The first ection consisted of omnopon, gr. 2/3 (Roche) and opolamine hydrobromide, gr. 1/50 (Burroughs llcome). Each subsequent injection consisted of opolamine, gr. 1/450. In no case was the omnopon peated. The second and third injections were given hourly intervals. Subsequent injections were given longer intervals, from 1½ to 2 hours, according to e condition of the patient. If labour ceased entirely, it did in four cases, the injections were withheld til it recommenced. The average number of ections in primiparæ was 4·5 and in multiparæ 4. The injection of pituitary extract was employed 17 cases (9 primiparæ and 8 multiparæ), chiefly in e second stage to augment the expulsive contractions the uterus. The amount of pituitary extract for a gle injection never exceeded 0·25 c.cm.

Duration of Labour.—The average duration of bour was as follows :—

—	Primiparæ.	Multiparæ.
tal length of labour ..	14 hrs. 45 mins.	16 hrs. 26 mins.
ration of labour after treatment began	5 hrs. 41 mins.	6 hrs. 5 mins.

The longer period in multiparæ was explained by the exceptional length of some of the labours.

Effect on Uterine Contractions.—In all but two cases the uterine action was altered by the injections. Lengthening of the intervals between the contractions was the chief alteration. The strength and duration of individual contractions were also diminished. These changes were most marked between the second and third injections—i.e., in the second hour—and could be ascribed to the action of the omnopon, for in most of the cases the pains increased again in force and frequency to culminate in expulsion of the fœtus. In four cases labour ceased altogether during the treatment for periods of 18, 6, 4, and 2 hours respectively.

Voluntary expulsive efforts did not arise automatically, but as a rule the patient made voluntary expulsive efforts when instructed to do so.

The maternal pulse and respirations were unaltered. Observations on the *blood pressure* during labour did not show any relation between the height of the blood pressure in mm. of mercury and the character and frequency of the uterine contractions. As a rule it was noted that the blood pressure tended to fall during labour.

Subjective Symptoms.—Thirst was noticed in every case. Nausea occurred in a few cases. Some of the patients complained bitterly of the pain, especially in the second stage.

Objective Symptoms.—Sleep between the pains was present in every case; slight restlessness and a moderate amount of mental confusion were noted as being associated with the uterine contractions in the most successful cases. Marked restlessness, difficult to control and tending to occur in periods of uterine relaxation, was an indication for postponing the next dose of scopolamine. Uncontrollable excitement was never seen.

Condition of Reflexes.—The pupils were normal and reacted to light. The corneal reflex was also normal.

Memory of Objects Shown.—A key or a pair of scissors was usually the object shown to the patient for the memory test. The memory of the object was lost in only two cases, but recognition of the object shown was never at fault.

General anæsthesia was only induced in five cases at the end of the second stage—three times for forceps extraction and twice because it was feared amnesia had been lost owing to the interval over which injections had been stopped when labour had ceased.

Mode of Delivery.—Delivery of the child was spontaneous in all but four cases, when forceps were used. Forceps were employed in two multiparæ with contracted pelvic outlet, and in two primiparæ, one with twins and the other with poor pains and a rigid perineum. In the latter cases analgesia was so good that an anæsthetic was unnecessary.

Delivery of Placenta.—In one case the placenta was delivered by Credé's manœuvre. In nine cases it was noted that hæmorrhage associated with the third stage was more than usual, but never excessive.

Condition of the Child.—One child was stillborn. The mother, a primipara, had premature rupture of the membranes and weak pains. The other children were born alive and were discharged healthy. In the majority of cases the child showed varying degrees of apnœa, but cried sooner or later on being left alone in a warm place. All the babies were thirsty for the first 24 hours.

Sleep after delivery was encouraged, and it was found that the better the sleep the more successful was the case.

Amnesia and Analgesia.—The establishment of amnesia alone was attempted as the condition of analgesia signified too great an intoxication. "Islands of memory" were produced by stimuli being apperceived during a lessening of the amnesia. The memory test was valueless, however applied. The best guide was the condition of the patient between the pains and her reaction to uterine contractions. The optimal condition was that of somnolence between the pains, with a moderate degree of restlessness and muttering delirium associated with the uterine

contractions. There were three main groups of cases: 1. Seventeen in which the patient remembered nothing of the labour. 2. Twelve in which the patient had islands of memory formed and remembered incidents during the labour. 3. Three in which amnesia failed.

Puerperium.—The condition of the patient was markedly better than in normal cases. There was less exhaustion. Three cases of pyrexia occurred—one of pyuria, one of suppuration of the perineum, and one of retention of membrane and delayed involution of the uterus. Lactation was normal in all the cases. Mr. Wilson's *conclusions* were:

(1) The treatment is very good for the mother, lessening the mental and physical strain of labour; but it exacts unremitting attention from both doctor and nurse. (2) The uterine action is definitely diminished, and so labour tends to be longer. This may be counteracted, however, by the use of pressor substances or by artificial methods of delivery. (3) There is no danger either to mother or child if the effects of the injections are carefully observed. (4) The memory test is useless. (5) Strict precautions must be taken to exclude all adventitious stimuli.

The PRESIDENT said that twilight sleep had been much boomed when it was introduced 20 years ago. It had then fallen into disrepute, and now was the time to take a clear and dispassionate view. He did not make use of it to any great extent. The great disadvantage was the amount of time taken up.

Dr. F. H. LACEY (Manchester) asked if Mr. Wilson had noticed an abnormal number of persistent occipito-posterior presentations. He thought that the apnœa was due to delivery rather soon after the injection of morphia. He used ether at the end of the second stage to diminish the pains; it also tended to stimulate the infant. He agreed that pituitrin was needed to stimulate uterine contractions. He gave scopolamine, gr. 1/100, for the first dose, and gr. 1/200 subsequently. A good nurse was essential and attention to the bladder was necessary.

Prof. MILES PHILLIPS (Sheffield) asked if the patients complained of dryness of the mouth. The preparation of scopolamine used was, he said, of importance.

Mr. WILSON, in reply, said that he had not had any persistent occipito-posterior positions in this series. He did not consider it was true twilight sleep if an anæsthetic was used. He had not had any patients who remembered their thirst during the labour.

Inversion of the Uterus.

Mr. WILSON showed a specimen as follows:—

A 3-gravida, aged 30, was delivered of a healthy male child with the breech presenting. Twenty minutes afterwards compression of the uterus was employed for bleeding, when the whole uterus and part of the vagina became inverted. The placenta was almost separated. It was removed and the fundus uteri was douched with hot lotion till it retracted. A tentative attempt at a reposition failed, and the patient was treated with morphine, gr. ¼, salines, and warmth for moderate shock. She died three hours later.

The specimen consisted of the pelvis with the uterus and the vagina inverted, showing the broad and infundibulo-pelvic ligaments greatly stretched and the ovaries and tubes out of sight in the cavity of the inverted uterus. There was no intraperitoneal bleeding and the bottom of the pouch of Douglas was markedly raised.

Dr. LACEY described a second case of inversion:—

A primipara, aged 23, was admitted to hospital suffering from an acute inversion which had occurred ten hours previously after an apparently normal labour. The midwife had expressed the placenta and had then noticed the inverted uterus. The patient was profoundly shocked. After treatment of the shock some hours later an attempt at reduction was made, but failed owing to œdema. Aveling's repositor was tried and failed. The patient had pyrexia for three months and had a white-leg. She suffered from menorrhagia and was in very bad health. Nine months later she was better; an attempt was made at replacing the uterus by incising the cervix and anterior wall of the uterus. This failed, until sutures were put in the fundus of the uterus and were pulled up through an abdominal incision. Then the uterus was easily replaced and the patient made a good recovery.

Prof. PHILLIPS said that of 184 cases collected fro THE LANCET and the *British Medical Journal* up 1912, 43 (23·4 per cent.) had been fatal. Seventee of the patients had died without treatment of a kind, usually before the doctor's arrival. In 49 cas the condition had been left unreduced (oft undiagnosed). Of these two (4 per cent.) died sepsis. In two cases the body of uterus had be twisted off and torn away by midwife. Both patie recovered.

With immediate replacement the figures were follows:—

	Cases.	Deaths.	Per ce
Marked shock	79	24	30
No shock	23	0	0
Shock not mentioned (probably absent)	11	0	0

In one case replacement had been deliberat postponed until the shock had passed off. The pati recovered.

Of 34 cases recorded in the same journals betwe 1912 and 1926 four had proved fatal, one them before the doctor's arrival. In seven the c dition had been left unreduced (some undiagnose All of these recovered. The following was mortality when immediate replacement was p formed:—

	Cases.	Deaths.	Per c
Marked shock	8	3	37
No shock	9	0	0
Shock not mentioned	3	0	0

In seven cases replacement had been deliberat postponed until recovery from shock. Among th there had been no deaths. He was of opinion t treatment of shock was essential before any atte at reposition.

Miss FRANCES IVENS (Liverpool) said that she seen a patient who had suffered from inversion tw

The PRESIDENT said that he had seen three ca in one of which inversion had been followed puerperal sepsis and later by death due to intest obstruction caused by adhesion of a loop of intes to the fundus of the uterus.

In reply Mr. WILSON and Dr. LACEY said that t thought the cause of shock was stretching peritoneum, possibly with compression of the ova in the inverted uterus. The treatment in the place was that of shock.

Mr. W. W. KING (Sheffield) described a case o

Concealed Accidental Hæmorrhage Treated Expectan

The patient, aged 46, was eight months pregnant her twelfth child. Fourteen hours before admissio hospital she suffered from faintness, repeated vomiting, acute abdominal pains. On admission she was extremel the face was pallid, the mouth and tongue dry, and respirations short, jerky, and rapid. The pulse uncountable at the wrist, was 180 at the apex. There a cloud of albumin in the urine. The uterus was tense, and tender. She was a hopeless surgical risk. She given 500 c.cm. of defibrinated blood and 2·0 c.cm thromboplastin, and the blood pressure soon afterw was 100 mm. of mercury. Two hours later the b pressure was 80, and she was given another blood t fusion, after which the blood pressure rose to and rema at 100. Labour then started, and she was delivered in hours of twins with two pounds of blood-clot. There no post-partum hæmorrhage and recovery was uninterru

In a recent paper before the Society, said Ki King, he had called attention to the fact tha concealed accidental hæmorrhage the uterine mu showed no histological evidence of disease or degen tion, and that it was functionally active and cap of strong contractions. This case supported the of the activity of the uterine muscle and showed the expectant method of treatment was possib cases of concealed accidental hæmorrhage.

Prof. E. E. GLYNN (Liverpool) asked if the bl platelets had been counted in this case. He found that they increased in number after confine up to the eighth to tenth day.

Dr. J. H. WILLETT said that he believed treatment should be expectant, though he had Cæsarean section in one or two cases.

Mr. KING, in reply, said that the blood-platelets had ot been counted. Mr. King also showed a specimen f carcinoma of the cervix in a case in which radium ad four years previously been inserted for the eatment of bleeding from a fibroid.

Dr. LEITH MURRAY (Liverpool) described a case of

Columnar and Squamous Carcinoma coexisting in a Uterus.

The patient was a nullipara, aged 53, in whom the enopause had occurred 18 months previously. For four onths she had had a foul blood-stained discharge. The erus was enlarged and there was a nodule on the cervix lieved to be a small retention cyst. A total hysterectomy as done four and a half years ago. She had had four eatments with radium with no recurrence. The specimen owed two different types of growth: (1) a fungating owth in the corpus; and (2) a dense infiltration tending from the external os upwards for two and a lf inches. Above was a columnar carcinoma typical of at in the body, while lower down was the usual uamous-celled carcinoma with massive processes of uamous cells surrounded by considerable round-celled posit.

The nodule on the vaginal cervix, said Dr. Murray, as obviously an area of squamous carcinoma not t broken down. He also described a case of rcinoma of the cervix occurring five years after noval of the appendages, and showed sections of the dometrium and ovary after intra-uterine radiation. Dr. C. P. BRENTNALL (Manchester) showed a ecimen of Oxyuris Vermicularis in the Uterus, and r. LEYLAND ROBINSON (Liverpool) showed specimens ating to suspected criminal abortion.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF OBSTETRICS.

A MEETING of this Section was held on Nov. 4th, en Dr. GIBBON FITZGIBBON, the President, opened liscussion on

SOME POINTS IN OBSTETRICS WHICH CALL FOR RECONSIDERATION.

began by referring to the increased frequency h which Cæsarean section was performed for ntracted pelvis, without corresponding reduction in number of craniotomies and difficult forceps diveries, and without any considerable improvement the mortality of the mothers and infants. He ocated strongly the development of antenatal nics and reviewed the various conditions of ectant mothers which could be benefited by enatal supervision.

Dr. L. CASSIDY considered that Cæsarean section he treatment of contracted pelvis must be regarded a failure of obstetrics. The number of women o required the operation at term was comparatively all. He thought that if medical men understood importance of very carefully investigating every nan at the 36th week of pregnancy the mortality m Cæsarean section would be reduced almost to ishing-point. Properly carried out the operation uld involve very little risk to the patient. per cent. of all women had the head unfixed at the et of labour, and yet a fairly large percentage of m had a perfectly normal labour. Every woman whom the fœtal head could not be forced into the vis at the 36th week should be examined under sthesia.

Dr. BETHEL SOLOMONS said that he had greatly eased the scope of antenatal work at the Rotunda. thought that doctors in private practice should rge a composite fee for attendance, in order to ourage patients to come regularly, and for panel ients antenatal supervision should be paid for should be compulsory. The incidence of Cæsarean ion had increased and the operation had been sed. No self-respecting obstetrician would do ion if it could be avoided. In spite of every effort number of cases at the Rotunda had increased, but the operation was nearly always done after a trial of labour, and the lower segment was the site of choice. When done at the proper time in selected cases it was an excellent operation, but the time must be carefully chosen, and the operator must make up his mind from a careful study of the case that the child would not be delivered by the natural passages, and the child should not be left so long that it was dead or potentially dead before section was started. The low segment operation could not be regarded as a failure in obstetrics, and when it was employed after careful antenatal supervision and a thorough trial of labour, combined with pelvimetry, and the mother and child were saved, the result might be regarded as good obstetrics. Every patient should have the advantage of internal pelvimetry besides other methods of diagnosis.

Sir WILLIAM SMYLY felt certain that the number of cases of Cæsarean section would go on increasing. The operation was not done often enough in cases of placenta prævia; in Germany it was now frequently done in cases of eclampsia. Timidity often led men to perform operations because they were afraid to wait and see. He had had patients who had been in hard labour for a week and had delivered themselves at the end of that time, perhaps of a dead child. Women would not consent to Cæsarean section more than a few times; in fact most women would not face it a second time. The question, How long should labour be tried, resolved itself into a matter of experience. The head would remain above the brim till the cervix was retracted. Not many obstetricians would nowadays wait longer than three or four days if the cervix was not drawn up by then. This he did not call a trial of labour. It was experience, more than any definite thing which happened, which indicated how long labour should last. The head was the best pelvimeter, but not the only one.

Dr. J. S. QUIN had known cases in which Cæsarean section had not been done because doctors were inclined to think that it was not an obstetrical operation, but a surgical one. Cæsarean section was a way of getting out of a difficult situation, and though he agreed that all obstetricians wanted to avoid doing it unnecessarily, he thought that it had not been used enough in the odd peculiar cases which cropped up every now and again. The results obtained from Cæsarean section were poor and not on a par with the results of any other major operation in surgery for a non-malignant condition. The maternal mortality was large and there was at least 50 per cent. sterility after the operation.

Dr. A. H. DAVIDSON said that antenatal work was the most important advance which had been made in obstetrics within recent years. He would like to see the need for it demonstrated to all the practitioners and all the women in Ireland. Its greatest use was that it brought a large number of women with abnormal pregnancies into hospital. Detroit had many antenatal clinics, run by the city itself, but with easy access to the hospitals. The maternal mortality of cases delivered in the city, and not in the clinic, was 6·75 per 1000, whilst the mortality in the clinic was only 3·5. The deaths from puerperal sepsis had been reduced by over one-half at the clinics, but the mortality from eclampsia had only been reduced by 25 per cent. Of the women who attended the clinics 30 per cent. were found to have some intercurrent disease or abnormality, which could usually be set right. Only 6 per cent. of the women of Detroit, however, came to the clinics. Dr. Davidson believed that antenatal care should be carried on into postnatal care, and that every woman on leaving hospital should be advised to come back in six weeks' time to have a bimanual examination made to find out where the uterus was, and should be told to bring the baby back with her.

Dr. A. P. BARRY had found that, practically speaking, the urine of every pregnant woman contained albumin. He thought that the only way to arrive at a conclusion about albuminuria was to get a catheter specimen.

Dr. D. J. CANNON asked if, after trial of labour, the President did a lower segment section or a classical segment section.

Dr. R. H. CORBET thought that the chief obstacle to antenatal care was the inertia of the public. Antenatal work needed an earlier start; it was impossible to get good results unless the patients came for advice early, and followed the advice given to them. The increase of Cæsarean section was partly due, he considered, to the increased transport facilities, and was to that extent fictitious. The same argument applied to eclampsia.

The PRESIDENT, in reply, said that he did not want to be taken as condemning operative midwifery in the hospitals; but he thought that the cases should diminish, and they were not diminishing. Any patients who showed abnormality at antenatal clinics should be put under special care. Seven or eight hours' trial of labour was sometimes long enough, but sometimes was not. After trial of labour he at present favoured lower segment section, though at one time he had done classical segment section. Obstetrical cases should be watched throughout. In England not one of the maternity hospitals went in for internal pelvimetry.

JAMES MACKENZIE INSTITUTE FOR CLINICAL RESEARCH.

ON Nov. 1st Prof. D. P. D. WILKIE read a paper on *Gall-bladder Disease and Gall-stones.*

After tracing the history of the development of gall-bladder surgery, Prof. Wilkie described the types of gall-stones which were at present believed to be of metabolic origin—namely, the single radiate cholesterol stone, found as a rule in stout females, and associated with afebrile attacks of colic but with little disturbance of health, and the multiple pigmented calculi found most typically in acholuric jaundice. He considered that cholecystitis was almost invariably an intramural streptococcal infection. It was quite exceptional to be able to grow organisms from the bile in any but acute cases. The failure of most observers, in this and other countries, to confirm Rosenow's observations was due, he believed, to faulty technique. Dr. A. L. Wilkie, working in the Surgical Research Department in Edinburgh, had shown that in 85 per cent. of cases of chronic cholecystitis a streptococcus could be grown from the cystic gland, and this organism on experimental inoculation had shown a selective affinity for the gall-bladder. Prof. Wilkie went on to describe the mode of origin of the multiple cholesterol-bilirubin-calcium stones after an attack of acute cholecystitis, and the origin of the multiple mulberry cholesterol calculi following cholesterosis with lipoid papillomata. In discussing the symptomatology of gall-stone disease, he drew special attention (1) to obstruction of the neck of the gall-bladder as the most frequent cause of gall-stone colic; (2) to the fact that the common bile-duct had no muscular coat, which permitted a stone to reside there without giving rise to symptoms; and (3) to the definite muscular contraction of the gall-bladder which might be produced by ingestion of fat. In diagnosis he ascribed a very limited field of usefulness to the duodenal tube; although it gave valuable information in late cases where the ducts were infected, it failed to give positive evidence in the earlier stages when the infection was intramural. Of all accessory methods in the clinical diagnosis of gall-bladder disease he gave first place to cholecystography, demonstrating the accuracy with which radiolucent cholesterol calculi could be made out, and the advantages of combining cholecystography with a barium meal examination. In regard to treatment, he contended that drugs which merely had a disinfectant action in the lumina of the biliary passages could not be expected to achieve much. He advocated removal of the gall-bladder, in whose wall the infection was located in every case in which it could be done without undue risk.

Reviews and Notices of Books

REFLEXES.

Conditioned Reflexes: An Investigation of t Physiological Activity of the Cerebral Cortex. I. P. PAVLOV, For.Mem.R.S., Director of Physi logical Laboratories in the Russian Academy Sciences, Petrograd. Translated and edited G. V. ANREP, M.D., D.Sc., Lecturer in Physiolo in the University of Cambridge. Londo Humphrey Milford, Oxford University Pre 1927. Pp. 430. 28*s.*

THE work accomplished by Prof. Pavlov and h numerous collaborators in the course of the la 25 years has been known to many physiologists, a its application to functional problems connected wi the nervous system of man has been attempted more than one occasion—somewhat tentatively, it true, and on a comparatively small scale. We e probably safe in stating, however, that except in few circles it has not been appreciated at its f value, largely because of the absence of any more less complete and authoritative exposition of bearings in a language with which most workers a familiar. In 1924 Prof. Pavlov conducted a cou of lectures dealing with the results he had obtain and with his technique and working theories, a from these lectures the present volume has be elaborated. Here are spread out before the rea not merely protocols of numberless experiments a descriptions of complicated technical procedure; he is now enabled for the first time to follow t train of thought in the author's mind, step by st from initial investigations whose import was scarc realised even by their originator, to a stage wh their significant range is shown by abundant a conclusive evidence to have expanded beyond t narrow bounds of laboratory vision and to touch w unmistakable definiteness not a few of the deep problems of cerebral function.

A historical introduction deals with the limitati of ordinary clinical and pathological methods solving questions of cerebral localisation and fu tions, and with the futility, in Prof. Pavlov's opini of subjective modes of inquiry. In place of t latter, by long and laborious trials, he eventua brought to a high pitch of perfection the method approach by what in his terminology is the "c ditioned reflex." Briefly, while inborn reflexes are in number, an experimental animal (the dog) can shown to have *in potentia* a capacity for develop very many other reactions, equally definite, obj tive, and automatic—equally reflex, in short—wh can be initiated and perpetuated by excitations o which the experimenter has full control. When f is shown to the animal and salivary secretion beg in a few seconds we are dealing with an inbo reflex; when food is put in his mouth, or acid, sal is secreted, either for alimentary reasons—an inb alimentary reflex, or to wash out a rejectable s stance—an inborn defence reflex. By combining giving or showing of food with a stimulus of anot order—e.g., the ticking of a metronome—a phy logical association can be started and developed the animal, the result of which can easily be de mined. Within a comparatively short time and wh comparatively few repetitions it is possible to get animal to react by salivation when only the sou of the metronome reaches him, all other excitati being absent. This is the conditioned reflex. On simple an experimental basis Prof. Pavlov has b up a body of physiological doctrine whose wi reaching applications it is the purpose of this fasci ing volume to discuss, but they can be underst only if the extremely complex development of research is systematically followed. By elabor experimentation it has been possible to exam physiologically the functions of external and inte inhibition, to demonstrate irradiation and concen tion as physiological properties of the cortex,

tudy the analytic and the synthetic function of the ame—in a word, to show how the cortex actually orks, and all this, be it repeated, by means which xclude the subjective factor absolutely.

Reference must be made to Prof. Pavlov's con-lusions that sleep is nothing else physiologically an internal inhibition, which has diffused itself ver the whole cortex and descended also to some fracortical centres (posture and equilibrium centres Magnus and De Kleijn); and that if the inhibition confined to the cortex a state of catalepsy ensues. he behaviour of the animal is determined by the nited function of the cortex; by its cortical analysers" (sensory centres) it adjusts itself to its rroundings; without its cortex it is converted into comparatively simple reflex machine, with a rela-vely limited number of conditioned reflexes; coördi-ation of its activities is based on the innumerable nditioned reflexes for which intermediation of ie cortex is indispensable. One of the fundamental eculiarities of cortical life is its perpetual state of ix, its extraordinary reactivity; for the cortex the me intimately interwoven functions of excitation id inhibition are for ever at work, as are seen in ie spinal cord when it is experimentally isolated. a final chapter the author attempts a comparison ith what is known of human activity, and states e obvious conclusion, that "different kinds of bits based on training, education and discipline of y sort are nothing but a long chain of conditioned flexes."

The full import of this epoch-making addition to urophysiological doctrine, and through it to neuro-gy, can scarcely yet be grasped. It is possibly the tstanding contribution of the present century.

Les réflexes de posture élémentaires : étude physio-clinique. By P. DELMAS-MARSALET, Préparateur de Physiologie, Faculty of Medicine, Bordeaux University. With an introduction by Prof. V. PACHON and H. VERGER. Paris: Masson et Cie. 1927. Pp. 115. Fr.16.

BY elementary reflexes of posture Dr. Delmas-arsalet understands what is commonly called a flex shortening contraction. Known for many years the "paradoxical contraction" of Westphal, oduced in the tibialis anticus, for example, by dden and firm approximation of its origin and sertion points, the phenomenon has been studied many workers and in different forms of nervous ease, as well as in states of health. Although a l examination of its behaviour in extrapyramidal nditions was published by Foerster in 1921, and hough it was critically considered by Wilson in s Croonian lectures of 1925, dealing with the same oblems, the author makes no reference to these ntributions, but ascribes our "notion of the reflex posture" to Foix and Thevenard (1923). Whether e familiar shortening contraction should be called reflex of posture is open to question; be this as it ay, the merit of Dr. Delmas-Marsalet is to have bjected it to a careful and minute investigation a variety of nervous conditions. His view that it highly characteristic of extrapyramidal disease will t receive the assent of all neurologists, since its quency in these states has not always been con-med; whether the exaggeration of "reflexes of sture" *explains* the characters of Parkinsonian idity, as is here contended, is equally open to dis-ssion. Interesting experiments with different armacological agents lead to the conclusion that mentary reflexes of posture appear to correspond, *la vie de relation*, to vagotonia in the *vie végétative*. ey are stated not to be influenced either by de-rebration or by experimental lesions of the basal nglia, whence it is concluded that Parkinsonian ndromes are not attributable to defect of function these (cortical, basal) centres—surely a dubious e of argument. Indeed, the author considers that rrent views of Parkinsonian pathogenesis are iated by the "fundamental error" of supposing that localised lesions of basal grey matter are more important from the viewpoint of function than cortical lesions "minimes, mais trés étendues." Here without question a finger is laid on the weak point of the clinico-anatomical method, but whether his own alternative theory is therefore or thereby justified is another matter.

L'état actuel de l'étude des réflexes. By M. MINKOWSKI, Professor in the University of Munich. Translated from the German by Dr. HENRI EY, Interne des Asiles de la Seine. Paris: Masson et Cie. 1927. Pp. 75. Fr.12.

A RECENT monograph by Prof. M. Minkowski has been translated into smooth and accurate French by Dr. H. Ey, and will doubtless receive due appreciation in this form. It deals with the whole question, so much in the melting-pot, of reflexes. With the view that definition cannot be established with certainty or satisfaction we are entirely in agreement; the simplicity of the Sherringtonian conception lands us in difficulties when it is applied to particular phenomena. To attempt its delimitation by stating that reflexes are "reactions which are neither too complex nor too simple" is merely to avoid the problem. There is a world of difference between the non-neural or aneural response of a lowly organism and a complex conditioned reflex in man, yet it is equally true to say that no break of a fundamental kind is traceable in the scale reaching from one extreme to the other. Another contention of the author which cannot be too persistently maintained is that the conditions of natural life in the animal differ materially from those of experimental and even of clinical exploration. Isolation of mechanisms by experiment distorts our idea of integrated function to a very great extent, and the application of knowledge thus derived to the behaviour of the organism as a whole must be undertaken with no little circumspection. In other words, what we often suppose to be concrete and specific functions, experimentally determined, are in reality but fragments of functions artificially elicited and isolated from their natural connexions.

Prof. Minkowski's contribution deals largely with the organisation and the dissolution of reflexes and with their relation to instincts, and is conceived throughout in a scholarly and philosophic vein which gives the whole problem its appropriate setting. In regard to the question of instincts he enrols himself with those who hold them to be distinguishable solely by their greater complexity and range, conditioning the activity not of one organ but of the individual as a whole. The fact that both serve to bring about reactions objectively useful in a biological sense (for the organism concerned, or for the species) proves their fundamental identity.

ATLAS OF BONE RADIOGRAPHY.

Atlas de radiographie osseuse. By G. HORET and A. DARIAUX, Radiologists to Les Hôpitaux de Paris, and Prof. JEAN QUENCE. Paris: Masson et Cie. 1927. Pp. 129. Fr.160.

THERE has recently been somewhat of an epidemic of radiological atlases published in this country. This volume, however, claims to be the first of its type in France. It deals with normal bones and joints only, and forms the first of a series of X ray atlases in course of publication. Further volumes will deal with pathological bone conditions, the stomach and duodenum, the intestine, the urinary tract, and the development of the osseous system. Each of the 123 illustrations is accompanied by an outlined duplicate which is annotated in the margin, and the following data are supplied: (1) the position of the part radiographed; (2) the angle of the normal ray to a definite anatomical point or plane; (3) the distance from the anticathode; (4) the degree of reduction, if any; (5) full anatomical explanation of all the shadows seen. The radiograms are well chosen and

well reproduced, and the method of outlining adopted makes the explanatory text clear. The radiological anatomy of the skull is especially well portrayed and the interpretation of the overlapping shadows easy to follow. The authors point out the value of a knowledge of radiological anatomy to students in the dissecting rooms, and put in a plea that it shall be taught along with the "dry" osteology—a course which is now adopted in at least three British medical schools.

This atlas forms a useful reference for those who wish for a copy of the normal to compare with any pathological condition, and is a great help in acquiring a knowledge of the normal. It is one of the best of its type, and we shall look forward to the subsequent volumes of the series.

HYGIENE IN INDUSTRY.

A Short Manual of Industrial Hygiene. By L. P. LOCKHART. With foreword by Lord INVERNAIRN. London: John Murray. 1927. With diagrams. Pp. 114. 3*s.* 6*d.*

Dr. Lockhart has written in simple language a little book which cannot fail to interest works managers and foremen in the principles underlying health. The spirit in which the facts are set out should go far to recommend them to all who realise that the health of workers is an economic asset without which in these days profits are hard to come by. The author states the principles of factory hygiene in relation to ventilation, humidity, and illumination, dealing sympathetically with the need for cloak-rooms, washing facilities, and canteens. But he makes it clear that without personal hygiene the provision of hygienic accommodation will fail of its effect, and the way is pointed for maintaining daily health and avoiding such diseases as the common cold and influenza. Vague ill-health, he points out, is at the root of most sickness; what is the matter with the sick is their tendency to be sick. Industrial accidents are but seldom "acts of God," they are commonly the result of the human factor in industry. Illness or fatigue breeds errors of judgment and carelessness which are fundamental causes of accidents. Useful hints are given for first-aid in emergencies. A chapter is properly devoted to the characteristics of the young workers from whom industry derives its strength or weakness; every effort to settle them well into their work and to keep them well when so engaged will be money and time well spent. The net value of establishing medical supervision for those industrially employed can only be properly assessed by those who are fully occupied in this work of whom the author is one.

The book can be unhesitatingly recommended.

THE QUEST OF THE BOY.

A Study of the Psychology of Character Training. By F. W. W. GRIFFIN, M.A., M.D., Assistant County Commissioner (London) Boy Scouts; late Lieutenant, Southwark Regiment Church Lads' Brigade. London: The Faith Press. 1927. Pp. 148. 1*s.* 6*d.*

PARENTS of old trained character with a light conscience and a heavy hand. Now we seek to cultivate it more tenderly. Dr. Griffin goes to work with reverence in his study of boyhood along the lines of the Hindu Trinity. His first three chapters deal with Wisdom, or "the right use of knowledge," and he discusses the training of the senses by a multitude of games and tests and their control for use by memory, association, logic, and concentration. Six chapters deal with Power—the instincts, the emotions, and the stages of growth and adaptation. The last three chapters treat of Will, or conscience made manifest in conduct, and especially in citizenship and social service. Many of the aphorisms will be useful to teachers in all circumstances, though they are written by the author in connexion with the boy scout movement. Here are three particularly valuable warnings for pedagogues:—

"The leader who tries to transfer his ideals to a boy is wasting the time of two people."

"Boys are frequently told that 'they are in honour bound to,' &c., but who bound them? Very often someone other than the boy. This is servitude, not honour, which is essential to the character of a free man. A boy may have bound himself one day, and his fluid nature unbinds him the next; what, then, is left to spur him to keep faith? His respect for himself as a fount of honour. Therefore a boy must have self-respect before he can be honourable."

"The man who has lost his boyish horizon altogether is like a long-sighted person who cannot see objects near to hand."

Dr. Griffin discusses scouts of all ages and the way to make them benefit by training. He especially cares for the adolescent or "rover," and to him the last and perhaps the best chapters of a sound book are devoted. He quotes neither Jung nor Freud, nor names them in the bibliography; but he is a well-read and skilled psychologist, who loves wisely the subject of his care.

MANAGEMENT AND ADMINISTRATION OF ESTATES OF LUNACY.

Second edition. By G. E. MILLS, O.B.E., and A. H. RONALD W. POYSER, B.A. London: Butterworths. 1927. Pp. 60. 7*s.* 6*d.*

MEDICAL practitioners are professionally more interested in other aspects of lunacy law than in the management of the property of persons who are of unsound mind or who are incapable—through mental infirmity arising from disease or age—of managing their affairs. But for those who require information on this subject this is a concise and adequate guide. It contains references to medical evidence, including a form of affidavit by a medical attendant.

Reports and Analytical Records.

(1) ATOCIN; (2) ATOCIN WITH ASPIRIN.

(CAVENDISH CHEMICAL CORP., LTD., 137, REGENT STREET, LONDON, W. 1.)

1. Atocin is indicated for the treatment of rheumatism, gout, and lumbago. Whilst the introduction of salicylates was a notable step forward in combating the painful afflictions caused by the different forms of rheumatism, it left untouched many aspects of this malady. In recent years attention has been given to phenylcinchoninic acid and its derivatives—among which is atocin—and the clinical results obtained appear to be hopeful.

When analysed these tablets were found to contain a substance which possessed the properties of phenylcinchoninic acid with starch as an excipient. Each tablet weighs 9·38 gr., of which amount 7·5 gr. is atocin.

2. *Atocin with Aspirin.*—These tablets are used for the same purpose as atocin. When examined they were found to be compounded of 5 gr. of atocin, 2½ gr. of aspirin (acetyl salicylic acid), starch being used as an excipient. Free salicylic acid was absent.

ASPRO.

(ASPRO LIMITED, SLOUGH, BUCKS.)

Aspro is an acetyl salicylic acid preparation advocated for the treatment of headache, sleeplessness, neuritis, neuralgia, and feverishness. On analysis the following results were obtained:—

Weight of each tablet	6·1 grains.
Acetyl salicylic acid	79·0 per cent.
Starch	21·0 „
Ash	0·2 „

The tablets are well made, uniform in composition, and give no reaction for free salicylic acid.

THE LANCET.

LONDON, SATURDAY, NOVEMBER 19, 1927.

PROSTATIC OBSTRUCTION.

We publish in consecutive issues two papers dealing with prostatic obstruction. Last week Mr. DAVID DAVIES and Mr. F. McG. LOUGHNANE analysed a series of cases of suprapubic prostatectomy, and this week we reproduce the text of a Bradshaw lecture in which Sir CUTHBERT WALLACE reviews the progress of our knowledge and treatment during the last 40 years. Whilst operative technique has considerably advanced, he confesses that information about prostatic function and the pathology of enlargement is still very scanty. He favours the view—probably the prevailing one at present—that enlargement is due to the formation of multiple adenomata. If this is accepted, however, it remains a matter of controversy whether the adenomata appear in the prostate itself or in the submucous periurethral glands lying between the prostate and the urethra. It was in 1905 that MOTZ and PÉRÉARNAU first made the suggestion that "prostatic enlargement" is a misnomer and that the periurethral glands, and not the prostate, are really the site of the adenomatous growths. The investigations of Mr. DAVIES and Mr. LOUGHNANE lend some support to this theory, although the number of cases recorded is too small to give any great weight to their conclusions. They found that reappearance of prostatic tissue is the rule rather than the exception after suprapubic prostatectomy, and occasionally this reappearance is followed by a recurrence of symptoms, though this happens rarely.

Of the underlying causes of enlargement nothing is known, and Mr. DAVIES and Mr. LOUGHNANE merely revive a discarded theory when they point out that a past history of gonorrhœa was common in their series. Their view that gonorrhœa has some definite influence in precipitating hypertrophy does not agree with that of other observers; Mr. KENNETH WALKER, for instance, in his Hunterian lecture of 1922, went into the subject at some length, and among other arguments quoted experiences in Japan, where prostatic enlargement is almost unknown, despite the fact that gonorrhœa is common. It must, indeed, be admitted that so far we do not know what it is that makes the prostate enlarge in some men but not in others, and we are equally in the dark when it comes to finding an explanation of some of the sequelæ. As the Bradshaw lecturer points out, "the mechanism whereby the loss of efficiency of the kidneys is brought about is still unsolved." In most cases—even those in which there is a good deal of residual urine—the ureter has to work against only a very small pressure, and there is little to support the view, so commonly held, that inefficiency of the kidneys following prostatic obstruction is a result of back-pressure.

In reviewing the surgery of prostatic enlargement Sir CUTHBERT WALLACE discusses the advantages and disadvantages of the suprapubic and the perineal routes, and like most British surgeons shows a preference for the former. As regards technique he sees no great advantage in substituting an open operation for the older method of removing the prostate by the aid of tactile sensation alone. In this he is in agreement with Mr. DAVIES and Mr. LOUGHNANE, who argue that it is unjustifiable to prolong a severe operation in order to dissect away tags of mucous membrane and fragments of gland tissue, since post-operative obstruction can be dealt with by diathermy. All three writers, therefore, favour a simple rapid operation rather than the open method, with its elaborate toilets of the prostatic bed, whose advantages have been often urged of late years. Indeed, Sir CUTHBERT WALLACE seems to believe that an elaborate operative technique, followed by irrigation intended to reduce sepsis, actually increases the risk of secondary hæmorrhage. These conservative views must, however, be considered in the light of his admission that in his own hospital the mortality has not materially fallen during the last ten years; surgeons have become more chary of performing the one-stage operation, but at St. Thomas's this has only meant that deaths formerly recorded under "prostatectomy" are now found under the heading of "cystostomy." His own view is that hospital statistics can at present be improved only by getting patients to seek earlier help, and he believes that future advances are less likely to come from improvement in technique than from earlier diagnosis and prompter treatment. Whilst agreeing with him about the importance of these factors we find it difficult to believe that progress may not also be achieved through better knowledge of renal function, improvement in our measures against hæmorrhage, and reduction of sepsis, which is here of such importance. The death-rate from prostatectomy is lamentably high, and the fact that patients put off their application for treatment until their condition is dangerous must not discourage fresh attempts to improve technique and to find new ways of guarding against accidents that add so much to the danger of convalescence.

THE NOTIFICATION OF TUBERCULOSIS.

Two purposes are served by the notification of an infectious disease. The first concerns the interest of the patient, the second that of the community. Delay in notification not only deprives the patient of the timely treatment upon which his recovery may depend, but also exposes his neighbours to unnecessary risk. No one questions these facts when the acute infectious diseases are concerned. Any laxity in the notification of small-pox is treated with the utmost rigour of the law. A doctor who fails to recognise diphtheria may need all the support that prejudice can supply if he is to escape a public censure. But when the notification of tuberculosis is in question no such concern is manifested. Though the patient's chance of recovery may depend upon early treatment and though the members of his household may be exposed to grave risks through their ignorance of the danger to which they are exposed, notification is neglected until it is too late to be effective either to stem disease or to prevent its spread. It is shocking that Dr. F. N. KAY MENZIES, medical officer of health to the London County Council, should have to report that 46 per cent. of the patients who died in the metropolitan boroughs in 1926 had either not been notified or had only been notified within three months of death. Dr. W. B. KNOBEL dealt with another aspect of the same question when, in addressing the Glasgow Conference[1] last year, he pointed out that 75 per cent.

[1] THE LANCET, 1926, ii., 90. Transactions of the National Association for the Prevention of Tuberculosis, July 1st–3rd, 1926. London: Geo. Pulman and Sons. P. 59.

of the patients admitted to the King George V. and Pinewood Sanatoriums were in a more or less advanced and irremediable stage of the disease when they first came under effective treatment

Consideration of the problem thus presented involves not only the doctor, but also the patient and the disease. The virulent types of "consumption," to which adolescence is prone, spread with such rapidity that frequently within a few weeks of the onset of the first symptoms large areas of both lungs may be involved. The chronic fibrotic type of the disease so frequently met with in the middle-aged has a far more insidious onset, is frequently masked by bronchitis and emphysema, and is not seldom unrecognised by either patient or doctor until a hæmoptysis or constant decline in weight arouses suspicion of some grave trouble. Nor is the doctor always responsible for delay in diagnosis. The dread of consumption, like the dread of cancer, often leads a patient to conceal his symptoms. The visit to the surgery is postponed because he fears a diagnosis of tuberculosis as a sentence of death. A pathetic anxiety to minimise symptoms, to deny cough, to explain that a hæmorrhage was only slight and obviously had its origin in the throat is characteristic of this type of consumptive. In striking contrast is the tendency of some who love to haunt dispensary waiting rooms—the woman of poor circumstances and in middle life, or the army pensioner in whose sputum tubercle bacilli have never been found. These magnify every symptom that can suggest a diagnosis of pulmonary tubercle and fear to lose their title to special consideration and sympathy among their fellows. It must be admitted, however, that when every allowance has been made the general practitioner is not free from responsibility for many of the delays in notification that are associated with tragic results. "Cough," says Dr. KNOBEL, "is a very common symptom and the symptomatic treatment of it must become almost automatic." Though time and skill are necessary for the diagnosis of early tuberculosis, a measure of common sense should prevent gross errors. A cough that persists for more than a fortnight and is accompanied by expectoration demands careful investigation in a patient of any age. A cough, however slight, accompanied by symptoms of lassitude or by loss of weight should obviously be regarded as a danger signal. The public laboratory is always available for the examination of sputum. The services of the tuberculosis dispensary are at the disposal of every practitioner. When these services are neglected the excuse that a crowded surgery does not permit of scrupulous care in the examination of every patient complaining of chest symptoms is not valid.

English law demands a verdict of guilty or not guilty. Scottish law provides a third alternative; unfortunately the Ministry of Health follows the practice of the English law. What should be the attitude of the practitioner who has taken all reasonable steps to arrive at a diagnosis and who yet remains in doubt? A diagnosis of pulmonary tuberculosis may deprive a patient of his chance of earning a livelihood and may plunge a whole household into despair. If made without sufficient evidence irreparable harm may result. Again, delay in diagnosis till the evidence is beyond dispute may jeopardise the patient's chances of recovery. A solution of the difficulty might be found in the provision of convalescent home treatment. This should be available as part of the antituberculosis scheme of every local authority. The convalescent home should provide treatment similar to that given at a sanatorium for early cases. If the superintendent were a tuberculosis officer of wide experience and if he were provided with means for the complete investigation of every case admitted for observation and treatment he would have little difficulty in deciding whether a patient might safely return home at the end of a few weeks or whether notification and transfer to a sanatorium should be arranged. Some useful experience is available. Five years ago the Ministry of Pensions allotted 200 observation beds for a closely similar purpose—namely, to determine the presence and activity of tuberculous disease in relation to previous military service. In a series of 500 cases observed at Orpington Hospital [2] there were 206 admitted with the provisional diagnosis of pulmonary tubercle in whom tubercle bacilli had never previously been found. In 75 of these the diagnosis was altered to some other chronic bronchial affection. In just one-third of the total cases no clear evidence of tubercle was found. In coming to a decision reliance was placed chiefly on clinical evidence.

RADIOLOGY AND RADIOGRAPHY.

THE amalgamation of the Rontgen Society and the British Institute of Radiology took place formally on Thursday (yesterday), when Sir HUMPHRY ROLLESTON, President of the Institute, delivered an address to celebrate its incorporation with the Rontgen Society and in his opening words paid an eloquent tribute to the late Sir ARCHIBALD REID. It was to REID'S energy and no less to his personality and tact that the Institute owes its present home, and Sir HUMPHRY ROLLESTON'S hope that REID'S portrait might be placed in the museum or the hall of the Institute will be endorsed by all who preserve a memory of that inspiring personality.

The formation of a Radiological Institute was first suggested by the late DEANE BUTCHER some 20 years ago, and 10 years later was revived by a committee presided over by MACKENZIE DAVIDSON with Dr. ROBERT KNOX as secretary. The movement was heartily endorsed by the leaders of the Rontgen Society, and was then taken in hand by REID and other leaders in medical radiology. The main part of Sir HUMPHRY ROLLESTON'S interesting address was devoted to setting out the aims and scope of the institute which he summed up as follows: "It is to serve as a meeting place of all interested in the subject—medical men of every department, radiologists, physicists, technicians or radiographers, instrument makers and manufacturers, so as to form a centre for consultation and coördination, and as a bureau to supply information of all kinds at the service of provincial, overseas, and foreign colleagues as well as of those in the metropolis, and thus to have an international influence." These are large functions, but when we contemplate, in terms of medicine only, what a centre of radiology must now imply, it will be seen that the objects of such a centre have not been unduly multiplied. The introduction of X rays as a means of physical diagnosis in itself constituted an advance comparable with that due to the assistance of the microscope in pathological anatomy, while, though much remains to be ascertained about the therapeutic uses of radiation, not a year goes by without the addition of facts to our store of observations. And these observations are all the more

[2] A. Sandison and G. B. Price: An Account of Tuberculosis Observation Work, THE LANCET, 1924, i., 1195.

valuable because they are derived from the work of men in no sense engaged upon medical research as their prime interest. While medical applications of radiology are most important to our profession, its bearing on arts and sciences and industry generally, as well as on physics and biology in the widest sense, demonstrates the urgent need for the frequent association in team-work of scientific investigators along many lines. This point was made eloquently by Sir HUMPHRY ROLLESTON, who pointed out that in medicine the clinicians, pathologists, anatomists, physiologists, and biochemists have much to learn from radiologists, who in their turn will reap great advantage from close coöperation with colleagues and from an insight into kindred researches such as can be derived from common study and common sources of information. Hence the reference library, which was started by Lady MACKENZIE DAVIDSON'S generosity, and in memory of her distinguished husband, will be an important feature in the new centre, while reminding future workers in this special field of DAVIDSON'S position as an early leader in radiology, already recognised in the Mackenzie Davidson Memorial Lectures under the Rontgen Society and the Electro-Therapeutic Section of the Royal Society of Medicine. Equally essential to the development of radiology will be a museum containing a collection of radiographic films and lantern slides illustrating completely the normal and morbid anatomy and physiology of the human body. The Rontgen Society, now amalgamated with the Institute, was founded as far back as 1897, little more than one year after Rontgen's public announcement of his discovery, although for some time previously he had been engaged upon elaborate investigations in physics upon which that discovery was based. The union of the two bodies has been attendant, for this reason or that, upon long negotiations, but each will gain by the amalgamation.

The affiliation of the Society of Radiographers makes the Institute representative of the technical side of radiology and the difficulty of professional association with persons not appearing on the Medical Register has been surmounted. This Society was incorporated in 1920 with a view to giving a definite professional status to certificated non-medical assistants working in X ray and electro-therapeutic departments. With the formation of the Society an end was put to the confusion between the terms "radiologist" and "radiographer," the former term being reserved for members of the medical profession undertaking diagnosis and treatment by X rays and radium, the latter term designating their trained, but non-medical, assistants. As all know, the training of the radiographer is now a complex and elaborate affair, and their inclusion as equal members of a great amalgamation is right, and incidentally is a sign of the more liberal atmosphere in which scientific therapeutics are conducted to-day.

WOOLWICH AND GREENWICH HOSPITALS.—The Duke of York, who was accompanied by the Duchess, recently opened the first section of the Woolwich and District War Memorial Hospital at Shooter's Hill. The section, which stands in 13 acres of grounds, 400 feet above sea-level, has cost £215,000, will hold 112 patients. There are wards of 26 beds each, a maternity unit of six beds, and isolation beds; sunlight and electro-therapeutic departments have also been provided. Two other sections will be required for the completion of the scheme, which will provide a total of 344 beds. In the Memorial Hall, panelled with various coloured marbles, is kept a Book of Remembrance to preserve the names of 6230 local residents who lost their lives during the war.—Princess Mary has recently opened the new nurses' home erected by the Greenwich Board of Guardians in connexion with the Greenwich and Deptford Hospital. The home will house 130 nurses, and stands so high that it commands views of Westminster Abbey and St. Paul's Cathedral. There are large recreation rooms, and tennis lawns are being laid out.—The Miller General Hospital for South London is being extended at a cost of £38,000, and King Edward's Fund has promised to contribute £16,000 contingently upon the raising of the rest of the money.

Annotations.

"Ne quid nimis."

THE MAUDSLEY HOSPITAL.

THE enterprise and vision of the founders of the Maudsley Hospital have borne ample fruit, and mental hospital officers all over the country now watch its development with great interest. The third report covers the period Feb. 1st, 1925, to Dec. 31st, 1926, and reviews the financial situation for the first time. The outlook, we are glad to see, is hopeful. The expenses inseparable from the opening years are being reduced; the cost of living and consequently of maintenance has fallen, and the revenue from patients' contributions has increased in proportion to the total expenditure, so that less of the cost is falling on the rates. Steady expansion rather than innovation has characterised the last two years, and modifications in policy are being postponed until the results of the Royal Commission become evident. The Maudsley draws its patients from many sources, and the medical superintendent states that every single mental hospital near London has referred cases during the last two years. Nevertheless, these patients form only a small proportion of the whole. Three times as many come from general or neurological hospitals; many "failures and misfits" come from social organisations, but the number of all these put together is doubled by those referred from their own doctors. This justifies the claim of the medical superintendent that he has never heard it suggested that the hospital encroaches on the province of private practitioners. A topographical survey shows that distance is a powerful factor, and that the majority of out-patients come from the immediate vicinity. This department is now the largest organisation of its kind in the country, and increased by 50 per cent. between the second and third years. The number in 1926 (11 months) was 1208. While the most obvious function of an out-patient department is to act as a sorting-house for the wards, the Maudsley is able, by virtue of its large staff of experienced clinical assistants, to give treatment to an increasing though limited number of out-patients. The medical superintendent, however, is careful to point out the danger of exaggerating the possibilities of out-patient treatment, for which only a few types of patients are suitable. During the period under review 1100 patients were admitted to the wards. New admissions are nearly always put to bed in the open air, but when their need for rest is satisfied every effort is made to provide them with some interesting occupation. All patients do a certain amount of work in the wards, and the carpenter's shop turns out beds, tables, lockers, washstands, and other articles of equipment. Even patients confined in the wards are distracted from their worries by instruction in handicrafts, of which there is a very wide range. That the results are both useful and attractive is shown by the ready market which the products obtain, so that the occupational department costs nothing but the salary of its officer. Wide use is made of physio- and electro-therapy, and two full-time masseuses are employed. There is a Swedish drill class in the garden daily, and all varieties of special and re-educational exercises are taught. The almoner's department performs some of the most arduous work of the hospital, for it visits patients' homes, undertakes services for them outside, places them in lodging and situations, and generally tries to ease the stress of their environment as much as possible. Some report of the pathological work appeared in THE LANCET for Oct. 29th (p. 924), and recent work continues the attempt to accumulate evidence of general bodily disturbance in the psychoses. Those who are interested in mental hospital work should not fail to study the full report.

THE REMOVAL OF HOUSE REFUSE.

IT is certain that the arrangements made by the majority of local health authorities for the removal of house refuse are very unsatisfactory from the standpoint of sanitation. The emptying of the dustbins and the passage of insufficiently covered dust-carts down the streets are both responsible for many complaints, especially on windy days; and the sorting of certain of the contents of dustbins, which is permitted in some areas, adds to the nuisance complained of. In this connexion many local health authorities do not practise what they preach. They seek to impress upon the general public the sanitary need for keeping the dustbin contents covered, while they are themselves great offenders and are constantly presenting bad object lessons. Indeed, it would appear that in this country we attach less importance to hygienic scavenging than do our continental neighbours, for in not a few centres of population upon the continent very complete and costly provisions are made for entirely preventing such nuisances. This is achieved by providing dustbins of special size and shape and fitted with special covers. The filled dustbin, tightly covered, is taken away, and a clean empty one substituted. This hygienically satisfactory arrangement is much more costly to install and to operate than the less sanitary methods prevalent in this country. There would be a great difficulty in getting owners and occupiers to provide the more expensive special dustbins, and it is not likely that the local authority would be prepared to provide them; but any suggestion which takes this difficulty into account and which promises to abate a frequent source of nuisance ought to be thoroughly tested. Some instruction may be gained from a visit to the Public Works, Roads, and Transport Exhibition which remains open at the Royal Agriculture Hall, Islington, until 7 P.M. to-day (Saturday). Here may be seen a dust-cart of the most recent type [1] with low loading level and mechanical tipping gear, for which it is claimed that it makes the operation of collection and removal practically dustless from door to destructor. In this cart the roof has a series of openings on each side which are covered with light metallic shutters, each connected to a foot-bar a few inches above the pavement level. When the loader puts his foot upon these bars as he lifts the bin the shutters open, to close again so soon as the bin is emptied. It remains, of course, to be seen whether the act of filling is dustless in practice, but sanitary authorities will have no excuse for continuing the old insanitary methods when once the problem of a dustless removal is solved in a satisfactory way. No method, however, is likely to be regarded as satisfactory which calls for a more costly and special type of dustbin, or if its total costs would add much to the already heavy charge upon the rates of this particular public service.

GRASS DISEASE IN HORSES AND BOTULISM.

AT a recent veterinary meeting Prof. J. Russell Greig, of Edinburgh, attempted to explain the clinical symptoms of acute grass disease in horses as an excessive stimulation of the sympathetic nervous system, due probably to overactivation of endocrine glands. No bacterial toxin, he said, is known to be a specific sympathetic stimulant. Veterinary opinion is certainly crystallising towards the view that so-called grass disease in horses is not equine botulism. It is probable that some of the outbreaks of so-called forage-poisoning in horses and cattle are due to the formation of a botulinus toxin in spoiled ensilage. Further, it is known that the South African disease of cattle termed lamziekte is due to the ingestion of a botulinus toxin formed in the bones of cattle which have died on the veld, the tendency for the cattle to eat the bones being due to pica caused by phosphorus deficiency in the soil. A similar condition to lamziekte has been found in Tasmania and attributed to botulinus toxin. Quite recently it has been shown that a botulinus toxin formed in the dead bodies of rats in stables in South Africa is very probably the cause of illness and death in horses, and there is reason to believe that it may yet be shown that such circumstances may cause illness and death in cattle and horses in other countries. Grass disease symptoms in horses, however, bear little or no resemblance to botulism in horses as can be demonstrated by feeding or subcutaneous inoculation of horses with botulinus toxin. Such experiments have shown that the horse is comparatively insusceptible to botulinus toxin whether fed or inoculated. Horses which have been infected experimentally by botulinus toxin show paralysis with inability to rise, the tongue hanging out, and salivation, while the mental faculties as well as those of sight and hearing are retained to their normal extent and little or nothing can be found in the way of post-mortem lesions. This is analogous to human botulism, but quite unlike equine grass disease. Moreover, grass disease occurs under conditions in which it is impossible to demonstrate that the victims have had any fodder other than the grass they pick up when at pasture, a feature which in itself almost excludes botulism, which presupposes some place where the bacillus can grow and multiply and produce its toxins outside the body. Grass disease is strictly confined to certain localities, where the *Bacillus botulinus* is ubiquitous. If it were feasible for herbivorous animals to develop botulism by the ingestion of the bacillus at pasture with the subsequent development of the toxin in the alimentary canal there would be no herbivorous population left. It is possible to demonstrate the presence of *botulinus* in the alimentary contents of herbivora, but clearly they do not produce their toxins there. Filtration of alimentary contents with concentration of the filtrate and inoculation into animals has failed to demonstrate toxin in grass disease. To prove that botulism is the cause of an outbreak in animals one must demonstrate the toxin in the suspected feed or in the gastric contents of the animals which have exhibited symptoms, and these symptoms must bear a resemblance to experimental botulism in the species. On the above grounds it would appear that veterinary opinion is justified in concluding that grass disease is not botulism.

SPEECH TRAINING AND STAMMERING.

A DISCUSSION on Nov. 8th, the first day of the International Conference on Speech Training held in the lecture hall of the Royal Society of Arts, afforded an excellent example of coöperation between those, medical and non-medical, whose work brings them into contact with the difficulties involved in speech production and particularly the treatment of the stammerer. Miss Elsie Fogerty, who on behalf of the Central School of Speech Training and Dramatic Art had organised the Conference, believes that speech and voice trainers should submit their practice to persons competent to judge the soundness of their physiological and psychological methods, and the selection of speakers accordingly included names well known in the specialties of laryngology and clinical psychology. Representatives of the clinics of the London County Council and of at least four special clinics attached to general hospitals took part in the discussion, and the speakers are to be congratulated on offering a wide range of opinion which nevertheless included no incompatibilities and could be brought together under one general principle. The interest of speech defect, especially stammer, has to some extent passed from the *how* of its production to the *why* and, since the *why* is a problem of behaviour and problems of behaviour contain infinite factors, it was not surprising to hear one speaker dwell upon the stammerer's poor sense of rhythm and turn to hexameter verse and the fox-trot for hints as to treatment, whilst another, in discussing the relation-

[1] Freighter dust-cart: special dustless loader type. Shelvoke and Drewry, Ltd., Letchworth, Herts.

ship of stammer and left-handedness, appealed to the Old Testament story of Ehud for proof that the people of those days recognised the rebellious and self-contained temperament of the left-hander. The speeches as a whole indicated a great advance in the understanding and treatment of a most distressing condition, and it is a pleasure to draw attention to the painstaking and unobtrusive work now being done on a disability that offers little opportunity for spectacular triumphs and yet affects the efficiency and happiness of many people.

THE TRIAL OF ADELAIDE BARTLETT.[1]

AT 4 A.M. on New Year's Day, 1886, Dr. Alfred Leach, of Charlwood-street, Pimlico, was called out to the lodgings of Mr. and Mrs. Edwin Bartlett in Claverton-street close by. He found the husband dead. The cause of death was a mystery till the post-mortem examination showed sufficient chloroform in the stomach to explain it. A few days earlier Mrs. Bartlett had obtained a supply of the drug through the Rev. George Dyson, a Wesleyan minister who was a close friend of the family and whose regard for Mrs. Bartlett had been by no means discouraged by her husband. Her reason for wanting the chloroform was, she said, that Mr. Bartlett suffered an internal complaint which caused violent paroxysms; it was essential to quiet and soothe him. Mr. Dyson bought 1 oz. of chloroform rather surreptitiously, but otherwise acted in a straightforward manner, and, when he found out that Mr. Bartlett's death was due to this drug and that the internal disease was a myth, he was honestly perturbed. Mrs. Bartlett gave to Dr. Leach a remarkable and entirely different explanation of her purchase of the chloroform. Suspicion naturally hastened upon her and a coroner's jury found her guilty of wilful murder, with Dyson as an accessory before the fact. At the trial at the Old Bailey the prosecution offered no evidence against Dyson, who thus became available as a witness for the Crown.

The Attorney-General, in his opening speech, addressed himself to the question how the chloroform got into the dead man's body. It might have been suicide, but there was no ground for supposing any such intention. It might have been swallowed by accident, but chloroform was a drug no man could take inadvertently. The only remaining possibility was that it had been administered by some third person. The theory, therefore, was put forward that there was first an external application inducing stupor and then the conveyance of the drug into the stomach while the man lay wholly or partly unconscious. The defence maintained the impossibility of such an operation, and all the medical witnesses were examined and cross-examined at length upon their experience and opinion of so unusual an occurrence. The problem of motive was complicated by the strange story of her marital relations which Mrs. Bartlett had told to Dr. Leach, but the issue of the trial really depended solely upon the scientific evidence. The jury's verdict stated that the case was one of strong suspicion; nevertheless, they found her "Not Guilty." Dr. Leach, writing in THE LANCET in April and May of 1886, hazarded the suggestion that Edwin Bartlett drank the chloroform out of sheer mischief to alarm his wife. It is as good a guess as another. The jury was doubtless right to acquit Adelaide Bartlett; still, as Sir John Hall observes at the close of his admirable introduction, some of those who think so may yet agree with Sir James Paget's remark that, once it was all over, she should have told us, in the interests of science, why she did it.

Some of the counsel in the Bartlett case happily still survive—Sir Edward Clarke and Sir Harry Poland (though neither had then been knighted), and Mr. Mead, the police-court magistrate. Russell, the Attorney-General, was not at his best; perhaps he was distracted by the campaign over Gladstone's first Home Rule Bill, then beginning. Clarke, his opponent, had, with characteristic industry, applied himself assiduously to the scientific side of the case. As in the Penge murder charge nine years before, he realised that acquittal would depend upon his handling of the medical witnesses. His autobiography relates that for a fortnight before the Bartlett trial he put aside all other work, forensic or Parliamentary, and devoted himself to studying in the British Museum and in his own library all that had been written about chloroform. His final address to the jury is a masterpiece of eloquence and advocacy, and his client had good reason to write him the letter of gratitude which Sir John Hall prints in facsimile.

[1] Notable British Trials Series. Edited by Sir John Hall, Bart. London and Edinburgh: William Hodge and Co. Pp. 402. 10s. 6d.

CHRONIC INFECTIONS AS A CAUSE OF ASTHMA.

IT is well known that asthma is often associated with chronic infection of the bronchi or nasal sinuses. In a recent paper[1] Dr. John Eiman puts forward the theory that in these cases the disease is due to sensitisation of the body to bacterial and other proteins present in the infected secretions and reabsorbed through the inflamed mucous membranes. In a series of asthmatic cases he diluted the secretion from the bronchi or sinuses and passed it through a Berkefeld filter. The filtrates which were found to be sterile were called "secretion filtrates"; they mainly contained products of the splitting of the secreted proteins, with some autolysed bacteria and their soluble toxins. A small amount of secretion was also diluted with saline and 1 per cent. glucose, incubated for 48 hours, and passed through a Berkefeld filter. This was called "soluble toxin" and was chiefly composed of soluble bacterial toxins, together with products of the splitting of secreted proteins and some autolysed bacteria. Dr. Eiman further prepared vaccines from the chief organisms of the sinuses and bronchi. The patients were then given intradermal injections of 0·1 c.cm. of "secretion filtrate," "soluble toxin," and vaccine, and the following three types of reaction were observed: (1) Positive reactions to secretion filtrates and soluble toxins but not to vaccines; (2) positive reactions to soluble toxins and vaccines but not to secretion filtrates; (3) positive reactions to all three. Normal individuals received injections in each case to serve as controls, and only when the patient reacted positively and the control was negative were the reactions considered to be allergic. By the use of controls it was found that the positive reactions with "secretion filtrates" were reduced from 95 to 77 per cent., with vaccines from 96 to 13 per cent., and with "soluble toxins" from 100 to 4 per cent. Whenever an "allergic" reaction was given with any of the three preparations it was used in treatment, the severity of the intradermal reaction being a guide to dosage. "Secretion filtrates" were given every fourth day, with vaccines and "soluble toxins" alternating in the intervals so that the patient received an injection every other day. The dosage was gradually increased. By this means 54 patients out of 86 were said to be relieved, besides 18 who were improved. Dr. Eiman considers that half the people whose asthma cannot be traced to a supersensitiveness to animal and plant proteins, pollens, or foodstuffs, have been sensitised to the proteins of their own secretion. He points out that administration of the filtrates should be regarded as a merely symptomatic treatment of asthma and that the main object should be the elimination of infections. For this reason he uses the autogenous vaccines and "soluble toxins"; whilst in another paper in the same journal Dr. Edward McGinnis draws attention to the part which the surgeon can usefully play in the removal of septic foci before they have had time to sensitise the patient. In all investigations of this kind, however, it has to be remembered that almost any new treatment will

[1] Jour. Amer. Med. Assoc., Sept. 17th, p. 953.
[2] Ibid., p. 959.

relieve asthma in a large proportion of cases if it is sufficiently impressive to capture the victim's imagination.

HOSPITALS IN CHINA.

Dr. James L. Maxwell, executive secretary of the China Medical Association, has written three articles for the *China Medical Journal*, in which he deals with the position in which the hospitals in Southern, Central, and Northern China, and the medical schools throughout the country, have been placed owing to the present period of political disturbance and civil war. As regards the medical schools, he writes that out of a total of nine, five, or possibly six, may be able to carry on without serious hindrance; one will continue on a limited scale, and two will remain closed. The position produced by the interference with medical education is a very serious one, for there is a decrease of nearly 50 per cent. in the output of fully qualified doctors from the best medical schools in China, and it will be several years before the former figures, which were themselves far below the needs even of the mission hospitals in China for Chinese doctors, can again be reached. Many of the Government and other medical schools, too, are closed, and the majority are in a desperate financial condition. A crisis has thus arisen, for the mission hospitals, nearly 300 in number, are largely dependent on these schools for a supply of qualified men; already the foreign hospital doctors are carrying all the burden they can, and more than they should, and the prospect of an adequate medical profession for the country becomes more and more distant.

As regards the position of the hospitals under the Southern and under the Northern Governments, Dr. Maxwell summarises the whole position, and though there is no intention on his part to judge the political situation, the figures, he says, speak for themselves. Under the Southern Government, out of a total of 165 hospitals 21·2 per cent. are running more or less normally, as compared with 70 per cent. under the Northern Government, which is responsible for 70 hospitals; 34 per cent. are running under temporary arrangement in the south, and 24·3 per cent. in the north. Of the number of hospitals that have had to be closed, there are 33·3 per cent. under the Southern Government, and only 5·7 per cent. under the Northern Government. The province of Yunnan has been excluded from these figures, as no accurate information of the position could be obtained, and also Honan, for the position of which no one party can be held responsible.

AMERICAN UNIVERSITIES.

THE amazing progress of the medical schools in the United States, the princely benefactions of America to medical education in this and other countries, and the constant stream of students and teachers who pass to and fro across the Atlantic all combine to make American education a matter of real and in many cases of personal interest to an increasing number of medical men in this country. Medical education can never stand properly by itself, and though it does not say very much about the preparation of the doctor we can heartily commend to the careful consideration of all members of the faculty of medicine a pamphlet [1] in which the Academic Registrar of the University of London urbanely records his impressions of a visit to the universities in the United States which he paid last year under the auspices of the Laura Spelman Rockefeller Memorial. In a comparatively short time energy and enthusiasm have applied exceptional wealth to the building up of what Dr. Deller describes as the most impressive monument to a faith in university education which the world has yet seen. And the faith is widespread, for it leads, for good, to the exemption of all universities from local and federal taxation and, for bad, to the supposition th a university education must be open to everyone a hence to an unmanageable host of students. But o of this flooding with ill-prepared school-boys, many them quite unfit for teaching of a university standa is emerging a development of great interest—t post-graduate university—in which is visible a part return to the old idea that the prime business of university is to be a body of learned students occupi in the pursuit of knowledge rather than an organisati for teaching undergraduates, as modern here imagines. In this country universities, especia Oxford and Cambridge, are governed by about as pu democracies as ever have been; the autocratic rule the American President is viewed, on the whc favourably by Dr. Deller, but it is evident from wh he says that the intellectual freedom of the teacher still far from secure. Many students, he writes, a seriously handicapped in their thought and in th expression of thought and are unprepared for serio study of any kind by a lack of vigorous discipline the use and value of words—a remark which will sympathetically received by those who read t examination papers of English medical students. mention only a few points; those who care for high education should read the whole—without envy a without malice.

[1] Universities in the United States. By Edwin Deller, LL.D. University of London Press. 1927. Pp. 46. 2*s*.

NOISE AND OUTPUT.

THE influence of sound on mental and physi activity has been more talked about than studi yet the sounds of modern life, by road or rail, factory or in mill, are ever increasing in complex and in kind. Although music has been used increase output, in industries as well as in arm it is generally held that the effect of irregular n is to reduce efficiency. Thus Münsterberg[1] qu the case of a woman in a printing shop whose w improved by 25 per cent. when she was remov from being near a passage where trucking was d and Florence[2] instances a factory where the rate absence for men was highest (6·8 per cent.) in noisiest department, as compared with 6·5 for dep ments where air conditions were poorest, 6·4 wh muscular strain was heaviest, and 6·3 where e strain was greatest, the rate in all these departme being in excess of an average for the whole fact which was 6·1. More intensive investigations now reported[3] from the Colgate University in United States, where typists were set to work i test-chamber containing a noise-machine wh reproduced the environment of an ordinary busi office. It made sounds like an electric motor, lik motor siren and a telephone bell, intermittently automatically, and rotated ball bearings in an drum; in the test-chamber the effect was increa through reverberation. Working metabolism measured every 15 minutes by collecting and analys expired air, and the speed of work and errors throu out two-hour periods of work were carefully no Under quiet conditions the average time per le typed had improved by seven seconds at the en the two-hour period, but when the noise-mac had been in full blast the time at the end was seconds longer than at the beginning. In o words, the artificial noise was found to inhibit warming-up effect. Under these conditions it noted that the faster the worker the greater was harm done by the noise. Under quiet conditi working metabolism was 52 per cent. higher t resting metabolism, but when the noise was tur on it became 71 per cent. higher, although the out of work was less. The 19 per cent. increase see to be expended in a general tenseness of the en musculature. Somewhat unexpectedly it was fo that the energy expended under noisy condit did not increase as the work proceeded, and t

[1] Psychology and Industrial Efficiency, 1913.
[2] Economics of Industrial Fatigue, 1924.
[3] The Measurement of the Effects of Noise on Wor Efficiency, D. A. Laird, Journal of Industrial Hygiene, Oct 1927.

he difference between the amount of energy xpended in the two environments was the same fter two hours as it was at the beginning. The uggestion is made that noise should be considered s a possible contributory cause of neurasthenia and atigue, and the experiments support conclusions hich many people will have drawn from their own ensations while at work in noisy places. The xperiment may not, however, give an accurate idea f the amount of damage done by ordinary noise. t is doubtful whether a machine can accurately eproduce the conditions of a factory or office, or its performance must always be attracting the onscious attention of the workers, whereas the hum f traffic and the familiar sounds of industry are ardly noticed by those who live among them.

HE HOSPITAL PROBLEM OUTSIDE LONDON.

THERE are few departments of the national activity which statistics are of greater practical value than ie vast field covered by the voluntary hospitals, id there is no more illuminating compendium of cts and figures relevant to those institutions out-de London than the annual report issued under e auspices of the Order of St. John of Jerusalem id the British Red Cross Society. The report for 26, the work of Mr. R. H. P. Orde, the Director of ospital Services of the Joint Council of these stitutions, which has been issued this week, is a ank and suggestive document, which not only istles with figures, but discusses some of the most fficult of the outstanding problems affecting the ture of the voluntary hospitals. Perhaps the ost important of these problems is the nature of e relationship which seems likely to be established tween the voluntary hospital and that provided public authorities, and the Joint Council recently ked the administrative officers of certain large ovincial voluntary hospitals to state their personal ews on the subject. Their answers form an appendix the report. They are very varied in character d form a curiously interesting conspectus of the inions of a number of experts looking upon the me subject by the light of long and varied experi-ce. The main point upon which there is general reement is that the voluntary system must be served at all hazards, though one or two of the mmentators are inclined to think, or fear, that ything in the nature of fusion or coördination tween the voluntary hospitals and the poor-law municipal institutions would result in serious advantage to the former, or even to their ultimate inction. Mr. Frank G. Hazell, general superin-tident and secretary of Manchester Royal Infirmary, es so far as to declare that "relationship between two is constitutionally impossible."

Much stress is laid upon the traditional and in-ained "dread" of the poor-law institution because its "pauper taint," but any system of coördination h as has been dimly envisaged by Mr. Neville amberlain would necessarily be founded upon the moval of that taint. Many suggestions are made meeting the pecuniary difficulties which too often round the work of voluntary hospitals—grants in from the State; loans for capital purposes, free interest, repayable over a series of years; grants m the Road Fund on account of motor accidents; general adoption of an efficient contributory tem; contracts between the public authorities the hospitals to do certain kinds of work for an eed sum. The last-mentioned system is already operation in Oxfordshire and Berkshire, with the ult, as the Rev. A. G. E. Sanctuary, of the Rad-fe Infirmary at Oxford, reminds us, that the dcliffe has been able to maintain a maternity partment which has greatly reduced the infant rtality-rate in the city of Oxford. The cost to the ford council is £1000 a year, a bagatelle compared the amount it would have to expend to maintain own system upon lines of equal efficiency. There however, a considerable agreement that, given a reasonable working system of coöperation, there is room for both forms of institution, and that the adoption of such a system would avoid the need for much further extension of the voluntary hospitals, which would thus be enabled to concentrate upon improvements and increased efficiency.

Coördination almost necessarily involves some differentiation of function between the two types of hospital, and the administrators who have contributed to this valuable symposium are, in the main, of the same opinion as the medical profession, that the municipal institutions should, among other things, take chronic, infectious, and incurable cases, the voluntary ones being reserved for cases of obscurity or difficulty requiring a high degree of technical skill, special diagnostic facilities, and so on. They would also treat all accidents and emergencies, and would devote themselves with greater diligence than ever to teaching and research. Another matter upon which stress is laid by more than one writer is the desirability of some scheme of central control for the avoidance of overlapping and the clear definition of function, which might not be identical in every instance. The paying patient, for example, might sometimes be more conveniently dealt with in the municipal than in the voluntary hospital, and some authoritative means might be needed for deciding the choice. Amid these diverse views one fact stands out—the medical staffs as a whole are strongly in favour of the preservation of the voluntary system with the working of which they are so intimately associated. That is not to say that they are oblivious of the powerful help to the health of the nation which could be afforded by the rate-aided institutions were they linked up with those which depend for their usefulness upon public benevolence and systematised public recognition of the services which they render. The problem of how best to forge the link is assuredly not insoluble.

THE DENTAL BOARD.

Sir Francis Acland gave a brief account of the Dental Board's educational work at the opening of the thirteenth session of the Board on Nov. 8th. Of over 50 students financially assisted throughout their curriculum, all but six or seven, he said, were now in public or private practice; furthermore, 150 out of 170 ex-Service men assisted by Government grants were also established practitioners. The standard of applicants for bursaries is satisfactory enough, although, as the Board's Registrar points out in his letter on p. 1100, the number of applicants is still insufficient to supply the probable need for dental practitioners, and steps are being taken to make the offer of financial assistance more widely known. The remaining part of Sir F. D. Acland's address was largely taken up with considering the education of the public in dental hygiene. The Board's travelling dental exhibits had, he said, been in great demand, railways and tram services were displaying educational posters, and an intensive campaign conducted in a northern county had resulted in surprising sale of tooth-brushes and creams. On the vexed question of dental clinics the Chairman of the Dental Board made no pronouncement, preferring no doubt to await the report of the special committee appointed by the Minister of Health. Finally, he expressed some surprise at the number of cases in which disciplinary action of a sort was being required. The few delinquencies coming before the Board this session were chiefly matters of advertisement, canvassing, or insobriety, but the Registrar spends no little time in bringing home to individuals the pains and penalties of practising dentistry without being on the Dentists Register.

Sir Arthur Keith, F.R.S., will take the chair at the third annual Norman Lockyer lecture, to be given by Dean Inge in the Goldsmiths' Hall on Monday, Nov. 21st, at 4 P.M. The subject will be Scientific Ethics.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

CCL.—THE TREATMENT OF POST-PARTUM HÆMORRHAGE.

II.* FROM LACERATION.

THE characteristic feature of this type of post-partum bleeding is that it occurs with a firmly retracted uterus, which is easily felt and grasped in the abdomen. The bleeding is not rapid and severe, but appears rather as a steady trickle that, if not checked, may in time give rise to serious symptoms. Should it be accompanied by immediate and marked collapse, it would suggest rupture of the uterus or an extensive laceration of the cervix extending into the base of the broad ligament. Inversion of the uterus, also associated with symptoms of shock, is excluded by the presence of the firmly contracted uterus in the abdomen. Sometimes blood collects in the distended vagina, especially in the posterior fornix, and escapes slowly, so that the state of affairs may not be immediately obvious. For this reason it is a sound practice when there is a steady trickle of blood to press down the retracted and empty fundus uteri at intervals so as to express any blood or clot that may have collected in the vagina. Should each expression result in the expulsion of blood and a mass of clot, it will be almost certain that the hæmorrhage is from a laceration of the cervix or other part of the genital tract. Bleeding from the vulva or vestibule is readily detected by inspection.

Causation and Preventive Treatment.

Trauma of the soft parts is most likely to occur in difficult and instrumental labours, especially those due to malpresentation and misfits. Rapid delivery through incompletely dilated soft passages always carries with it the risk of extensive laceration. One of the reasons why so much emphasis is laid on not attempting delivery by the forceps till the cervix is fully drawn up over the head, and on slow delivery in placenta prævia once compression of the placental site had been secured, is the serious hæmorrhage that may result from lacerations produced thereby. The soft parts about the vestibule and round the pubic arch may be cut cleanly by pressure of the blades of the forceps or other instruments against the hard bone. The tearing of soft parts, such as the perineum, by overstretching is rarely associated with bleeding of any moment, as the vessels are torn rather than cut. Occasionally similar accidents may arise in a natural labour, particularly if associated with strong pains and rapid expulsion. Early rupture of the membranes followed by rapid completion of the labour by the natural powers may result in cervical and vaginal tears, but here again serious bleeding is very unusual because the tissues are not clean cut.

The *preventive treatment* is obviously to avoid as far as is possible by careful antenatal supervision the complications of labour likely to give rise to laceration, and to refrain from rapid delivery through the insufficiently dilated soft passages.

Treatment.

Treatment, when the condition has arisen, must depend on the severity of the hæmorrhage, the site of the laceration, the circumstances in which the labour is conducted, and the facilities available. Bleeding from clean-cut lacerations of the vestibule, or vagina near the outlet, which can be easily seen and reached, may be controlled by underrunning with a catgut stitch, either mattress or double cross-stitch. Similar treatment would clearly be best in all cases of bleeding of more than a minor degree were it not that a thorough investigation of the higher reaches of the genital tract is difficult and requires good exposure, good light, skilled assistance, and often difficult manipulations in circumstance that are a great handicap to success. Hence it i essential that full consideration be given to what i possible and effective as well as to what might b done under hospital conditions.

When the bleeding is not severe, and is represente by a pooling of blood in the vagina, which trickl out at the vulva in a slow stream and is expelled a clot and fluid blood by occasional expression, vaginal douche as hot as the woman can bear, or she is anæsthetised, at a temperature of 115–118° F should be given at once. That will usually suffic unless a large vessel is divided, but before leavin the patient, time should be given to make sure tha blood is not collecting again in the vagina.

In the more serious cases, and when the douche ineffective, the next procedure to be adopted mu be determined by what is possible in the circumstance The best would be to give an anæsthetic and, wit the patient in the lithotomy position and a weighte speculum of the Auvard type in the vagina, examine the cervix and vaginal fornices thoroughl discover the source of the bleeding, and suture tl laceration with catgut. Even under the favourab conditions of a hospital, with an electric headligh and skilled assistants to retract and sponge awa the blood that obscures the bleeding area, this ma not always be a simple matter, though generally tl cervix can be brought down by volsellum force and sutured. The difficulty is greater with laceratio running out into the vaginal vault or up into tl lower uterine segment. To advise measures this kind for ordinary family practice would be counsel of perfection that could rarely be followe The hæmorrhage, however, can always be controll by firm packing and pressure downwards on t retracted uterus. Either with the woman on h left side, or, if there is adequate assistance, in t lithotomy position, the vaginal vault is stuffed tight with sterile gauze or an improvised and boiled dre ing, and with a hand on the abdomen the uterus pressed firmly down on the plugging, whilst t gloved fist of the other hand presses the dressing against the cervix and vaginal vault for a time t more material is ready to be inserted; once it is place, the compression between the hands is resume and this packing goes on till there is a tight vagin plug against which abdominal pressure can be mad a tight binder over a graduated compress bel applied to maintain it. If the bleeding is seric and time is needed for the preparation of the dre ings, it may be controlled for the time being by form of bimanual compression, in which the glov fist, covered so far as possible with a sterile s dressing, is pressed up against the vaginal vault a lower part of the uterus, whilst the external ha presses the body down on it, till time is gained fo more permanent method of compression by pluggi In other words, if the bleeding area is high up, t best plan is to exercise pressure manually over wide area of the vault till it is possible to dev some other means of continuing the compressi If the laceration extends into the lower uteri segment, and even if it is complicated by prola of bowel, firm plugging, after return of the prolaps intestine, is the best emergency measure.

Sometimes it may be possible to carry out an int mediate plan, by getting hold of the torn cervix vaginal vault with volsellum forceps (or other form forceps or clamp) and checking the bleeding by pressure of the forceps or by applying traction upon and leaving it there till arrangements can be made a more effective control by suture. When the po bilities of infection are considerable, plugging is sa than suture, for it leaves a free exit for discharg Infected wounds are best left to granulate, and fe first thing to be done, should infection occur af stitching a tear, is to remove all sutures to allow escape of discharge.

Indeed, in all severe lacerations that call suture, once the hæmorrhage is under control it's best to postpone any further interference till adequ

* Part I., Placental Post-partum Hæmorrhage, appeared last week.

sistance and suitable conditions can be arranged. such an accident as a perineal laceration involving e rectum, it is better to adopt temporary measures here conditions are unfavourable, and postpone the turing for 12 hours or so, rather than try to make e best of a bad job in the middle of the night with poor light and no skilled assistance. In circumances such as these, and in procedures where curate suturing is essential, the risk of failure is sened by waiting till satisfactory arrangements n be made, and increased by attempting a difficult sk under unsuitable conditions.

The treatment of post-partum hæmorrhage from eration may be summarised by saying that when does not yield to a hot douche, compression by a ig is better than the theoretically more efficient ture in all save wounds which are low down and sily seen. Suture of tears through the cervix into e base of the broad ligament may fail to hieve its object, because when the cervix is drawn wn, the uterus comes down with it, but not the rametrium, and the vaginal walls may be sutured d bleeding continue into the space above. On the ier hand, the attempt to close the space by encling it with a curved needle runs the risk of luding the ureter. Some 20 years ago Fritsch ted that, as the result of observations on cases which secondary operation or post-mortem examiion had been done, bleeding was checked by ure only in those cases in which it would have sed without it. As plugging is not always well ne and much blood may be lost during preparations and insertion, he urged that for immediate treatment the best plan was to grasp the labia majora in the left hand and press the relaxed pelvic floor upwards into the pelvis, whilst the right hand pressed the uterus deeply into the pelvis so as to compress the bleeding surface between the two hands. This pressure can be maintained for half to three-quarters of an hour, and has the advantages of immediate applicability, compressing the bleeding surfaces so as to leave no dead spaces in which blood may accumulate, and being entirely extra-vaginal, so that the risks of infection are greatly lessened.

As both plugging and suture, particularly the latter, may be followed by the formation of a hæmatoma, the warning may be given to watch for swellings in the broad ligament that may come up over the pelvic brim and appear as a hard mass on that side of the middle line on which the laceration has occurred. Also if a douche is given it should be under low pressure, with the patient's hips low and the body propped up, and no poisonous chemical should be used. Heat is the agent in checking hæmorrhage. Absorption from extensive raw areas is rapid, and communication with the peritoneal cavity is a possibility to be borne in mind in serious lacerations. If there is prolapse of bowel, or other definite evidence of a rupture into the peritoneum, plugging only should be adopted.

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MEDICINE AND THE LAW.

Infanticide Act: "Newly Born Child."

WHEN Parliament passed the Infanticide Act in 22 critics observed that the language of the statute s too indefinitely expressed. A woman might be nd guilty of infanticide instead of murder if, upon l for the murder of her newly born child, the jury e of opinion that she by some wilful act or omission used its death, but that, at the time of the act omission, she had not fully recovered from the ct of giving birth to the child, and that, by reason reof, the balance of her mind was then disturbed. s enactment, said the critics, was strangely vague. at is a "newly born child"? What is the mean- of "not fully recovered"? Some light has now n thrown upon the first of these two questions, the Court of Criminal Appeal has decided that Justice Talbot was quite right in holding recently the Central Criminal Court that a baby a month could not be deemed "newly born." It had n proved at the trial that the baby was born on gust 19th. The mother confessed that on Sept. 21st "put a napkin round the child's neck and twisted ecause I had nobody to mind him and no money." was contended on her behalf that the jury should e been allowed to say whether or not the child newly born within the meaning of the Act, ether or not the mother had fully recovered, and ether or not her balance of mind was disturbed by recent confinement. Counsel urged that mental urbance normally continued for six weeks after finement; puerperal insanity and melancholia ht appear at any time up to six or eight weeks r the birth. The Lord Chief Justice, however, l that it was not enough to argue that the mother had a child and had not fully recovered from her finement; the word "newly born" could not be ored. Unless the child were "newly born," the y could not find a verdict of infanticide. The rt was not proposing to define "newly born d," but it was satisfied that a child of more than alendar month in age was not newly born within meaning of the Act. It thus appears that Mr. tice Shearman was wrong when, in the case of x *v.* McConnell, tried at the Reading Assizes four rs ago, he allowed the question whether a child weeks' old was "newly born" to go to the jury for decision. When, following a suggestion by the late Dr. J. W. Ballantyne, of Edinburgh, the medical profession employs the term "neonatal mortality," it is referring to mortality in the first month of postnatal life. It might be helpful if the legal profession would adopt some similar standardisation of language.

The Infanticide Act was passed to end the grim farce of sentencing women to death for child murder when everyone in court knew that the Home Office would refuse to allow the capital sentence to be carried out. Judges disliked the situation acutely. Lord Loreburn proposed, about 20 years ago, to end the difficulty by giving a judge power to say that child murder was merely manslaughter. Subsequently Lord Alverstone brought in a Bill to allow judges to record the death sentence in such cases without pronouncing it in open court. Neither of these proposals became law.

Death of Mr. Harnett.

Mr. William Smart Harnett, remembered for his long litigation against members of the medical profession, was found drowned in the Union Dry Dock at Poplar on Nov. 10th. It has been stated in the daily press that, in consequence of that litigation and the inquiry which followed it, Parliament passed legislation in 1925. If this is so, it was a somewhat remote result. The Act of 1925 amended not the Lunacy Act but the Mental Deficiency Act of 1913. The statute of 1913 permitted a judicial authority—i.e., a county court judge, stipendiary magistrate, or specially appointed justice—to make an order placing a mental defective in an institution for detention or under guardianship. The Act further created machinery whereby a person already under guardianship could be transferred to the greater restriction of detention in an institution; but it omitted to provide for the converse operation of transferring a person from detention to guardianship. The 1925 Act remedied the omission. It was supported by the Central Association of Mental Welfare and by all who realised that, after a period of detention, persons are often so greatly improved in health that they can advantageously be transferred to guardianship—which, incidentally, is a more economical form of maintenance. But this rectification of a statutory omission hardly arose from the facts in Mr. Harnett's case; indeed, the changes in the law which that case indicated as desirable seem still to be far off.

Special Articles.

ON THE NUTRITIVE VALUE OF BREAD,

WITH SPECIAL REFERENCE TO ITS CONTENT IN VITAMIN B.

BY W. CRAMER, D.SC. EDIN., M.R.C.S. ENG.,
AND
J. C. MOTTRAM, M.B. LOND., D.P.H. CAMB.

IT has been said with truth that the food problem is the bread problem. The reason for this statement is that bread, like all cereal products, furnishes the most nutriment for its cost. Bread is consumed more regularly and in greater bulk than any other article of diet. The diet of the working man has been calculated to include on the average about 1¼ lb. of bread a day, representing about 60 per cent. of the total protein intake. Wheat, like most cereals, is rich in vitamin B, so that formerly the bread made from the stone-milled flour was presumably an important supply of vitamin B in the human dietary until the introduction of roller mills, about 40 years ago. The introduction of the roller mills and the almost exclusive use in this country of the fine white flour for the baking of bread has changed the situation completely. Observations are recorded in the literature (Osborne and Mendel, 1919) which show that the water-soluble vitamin B is not evenly distributed throughout the wheat grain and that the fine white flour now used almost exclusively in this country for human consumption is practically devoid of this vitamin. It would appear to follow that white bread is no longer an important supply of vitamin B in the human dietary in this country. Against this conclusion it has been argued that the deficiency of vitamin B in the white flour is made up by the yeast used in baking, since yeast is supposed to be exceptionally rich in this vitamin, and experiments have been recorded (Hartwell) which are supposed to confirm the contention that white bread contains a considerable and adequate amount of vitamin B. This contention was in such striking contrast to observations by previous observers (Hawke, Smith, and Bergheim) as well as one of us (W. C.) that in view of the outstanding importance of this subject a detailed investigation of this important problem seemed called for.

The recent work of Goldberger makes it necessary to define vitamin B. This author has shown that the water-soluble vitamin B contains two substances, one which can be recognised by its antineuritic action and by its rapid effect on growth, and another one which has a more delayed action on growth and which cures or prevents a condition in animals which he believes to be identical with pellagra in the human subject. This work has been confirmed recently by Chick and Roscoe. Goldberger speaks of the first-named substance as vitamin B proper. Since all the past work on vitamin B is based either upon the antineuritic effect or on the rapid effect on growth, this definition, which does not involve any alteration of recorded observations, appears to us to be the right one, and we have adopted it.

It is well known that wheats of different origin show differences in their chemical composition and in their physical characters. According to Bell and Mendel, they vary also in their vitamin content. They found that Marquis spring wheat contains two or three times more vitamin B than Minnesota winter wheat. Since such differences might introduce a fallacy it seemed essential to work with milling products of known origin and representing a fair average. We were fortunate in enlisting the interest of the directors of Hovis, Ltd., in this investigation, so that we were able to work with different milling products of known origin and also with bread baked with materials of known origin and in known quantities. We are especially indebted to Mr. A. E. Cressall, one of the directors of Hovis, for assisting us with his technical knowledge of the subject.

A brief account of the process of milling is necessar for the understanding of the problems involve The following account is based on data supplied t us by Mr. Cressall. The wheat grain consists endosperm which makes up the bulk of the grai about 77 per cent., the embryo, which constitut only 2 per cent. of the grain (and is richer in fat tha the endosperm), and the husk. The latter is made u of two layers, which are fused together—namely, t pericarp or modified ovary wall, and the testa or see coat. Immediately underneath the testa or seed co is a layer of differentiated cells, the aleurone cell In the process of milling the grain is disrupted and number of materials are obtained from it which a separated from each other by the size of the sie through which they are made to pass. In this mann the particles which go through the finest mes constitute white flour, of which about 70 per cen of the whole grain is obtained. The next coars material is called " sharps " or " middlings," and i the main this is made up of the inner skin of t grain together with the aleurone cells, with a slig admixture of endosperm and also of embryo. T coarsest material is the " bran," which is essential the outer skin, again with a slight admixture of t wheat embryo. The bulk of the embryo is separat from the other materials owing to its fatty natu This product, in which a considerable amount endosperm remains adherent to the embryo, is call technically the " germ." Thus as a result of milli one obtains the different materials in the followi proportions :—

	Per cent.		Per ce
White flour.. ..	70	Germ	1½–2
Sharps or middlings	14	Loss	½
Bran..	14		

All the milling products except white flour are so as offal and used for cattle food, except whe wholemeal or germ flour is being used for special kin of bread. The white flour may again be graded in t process of milling according to the requirements of t trade. The finest white flour is called " Patent This represents 60 to 75 per cent. of the total whi flour extracted in milling. " Straight run flour is simply the total ungraded white flour as obtain in the milling.

The first observations on the subject recorded in t literature (McCollum and Davies ; McCollum, Simon and Pitz) emphasised the richness of the wheat gra and especially of the wheat embryo in vitamin B, little as 2 per cent. of the wheat embryo in a di otherwise free from this vitamin being sufficient maintain growth over a long period in rats. T represents an actual weight of about 0·2 g. of whe embryo. Further investigations on the vitam content of the various milling products were made Chick and Hume, who used pigeons as test objec and compared the amounts of the various milli products necessary to protect against and to cu respectively avian polyneuritis which sets in when t birds are kept on a diet of polished rice. They fou wheat germ to be richest in vitamin B ; next ca bran, while white flour was so poor in vitamin B th by itself it was unable even to protect birds agai polyneuritis or man against beri-beri. Seve examples of beri-beri occurring in civilised communit living on a diet which was for some special reaso restricted, and in which white bread was the on cereal product consumed, are given in the Medi Research Council's Report on the Accessory Fo Factors. The vitamin content of wheat germ measured by its antineuritic potency is very hig Chick and Hume found that a dose of 2·5 g. a occasionally 1 g. wheat germ was sufficient to cure pigeon showing fully developed symptoms. It richer even than yeast, which is generally held to exceptionally rich in this vitamin. For pressed ye Chick and Hume found 3–6 g. to be the curative d in pigeons.

Bell and Mendel estimated the vitamin B conte of the various milling products—namely, " Pate flour "—i.e., white flour—" first and second clea

low grade and bran" and "standard middlings" and ompared them with the vitamin B content of the hole grain. Their observations, which were made on iice, were carried out so as to give the amounts of ie various milled products which had to be added to vitamin B free basal ration in order to supply the nount of the vitamin necessary for growth. This as 15 per cent. of the whole diet for spring wheat, id 40 per cent. for winter wheat. White flour was und to be so poor in this vitamin that it would have en necessary to give nothing but white flour—i.e., 0 per cent. of the diet in order to supply the animal ith an adequate amount of vitamin B. Such a diet ould be deficient in other respects and unable to aintain the health and growth of an animal. Com- ared with the whole unmilled grain, first and second ear were found to have the same content in vitamin B, low grade and bran" were twice as rich, and standard middlings" four times as rich as the whole ain. The standard middlings are stated to have ntained most of the embryo. The germ itself was und by Osborne and Mendel to be the richest part the grain in vitamin B, thus confirming Chick and ume's observations. The germ, in spite of its nallness, was found to contain as much as one-sixth the total amount of vitamin B present in the grain.

In the experiments referred to above, except those Bell and Mendel, no detailed description of the rious milling products is given, nor what percentages their products were obtained from the milling of the ole grain. In the experiments to be recorded andard wheat was used consisting of:—

	Per cent.		Per cent.
No. 1 N. Manitoba..	20	Plate	30
No. 2 ,, ..	20	Australian	10
No. 3 ,, ..	20		100

From this the following products obtained by illing were investigated: white flour, 70 per cent.; iddlings, 14 per cent.; bran, 14 per cent.; and rm, 1½–2 per cent.

The experimental details were as follows: Rats om 70 to 100 g. were used for these experiments. heir weight and temperature were taken once weekly, ways at the same time. They were kept on a basal tion completely free from vitamin B and consisting casein (especially purified), starch, olive oil, and the ual salt mixture, to which was added cod-liver oil. n such a diet the animals gradually pass into the rasmus characteristic of vitamin B deficiency, hich deepens progressively as manifested by cessation growth, followed by loss of weight and accompanied a progressive lowering of the body temperature. e lowering of the temperature is in our opinion a ore sensitive indicator of the absence of vitamin B an the weight, provided that the animals are kept i a room kept at a fairly even and warm temperature. does not seem to be sufficiently appreciated that e temperature of the animal room is an important tor in determining the rate at which a deficiency in amin B affects the organism. The animals were pt on the basal vitamin B free ration until the body nperature had fallen to about 36° C. Then the terial to be tested was added to the basal ration. the temperature returned to the normal in two eks, and the weight increased, the result is stated as omplete recovery." If the normal temperature was gained after a lapse of more than two weeks the ult is stated as "slow recovery." If the normal nperature was not regained the result is "no covery." In our experiments the changes in the ight curve corresponded almost always with those the temperature curve. In each experiment three s were fed together in the same cage on the same t. The germ used was sterilised germ, as used in preparation of Hovis flour. Experiments with sh germ showed that the method of sterilisation ployed in this process did not materially decrease e vitamin B content of the germ.

The results are shown in Table I., which gives the ounts per rat of the various milling products added 10 g. of the basal vitamin B free ration.

White flour contains so little vitamin B that the addition of as much as 7·5 g. to 10 g. of the basal ration per rat was unable to produce even a slow

TABLE I.

Wt. of germ.	Recovery.	Wt. of middlings.	Recovery.	Wt. of bran.	Recovery.
g. 0·2	Slow	g. 0·5	Slow	g. 0·5	None
0·5	,,	0·5	,,	1·0	,,
0·5	Complete	1·0	Complete	1·0	Slight
1·0	,,	1·5	,,	1·0	Slow
1·5	,,	2·0	,,	1·5 2·0	Complete

recovery. It may therefore for all practicable purposes be considered to be free from vitamin B.

The vitamin B content of yeast is of importance in connexion with the vitamin content of the various kinds of bread. In the Medical Research Council's report of vitamins it is stated that a rat on a vitamin B free ration requires the addition of 0·1–0·2 g. of dried yeast. This amount corresponds to 0·5–1·0 g. of fresh yeast as used for baking. For polyneuritis in pigeons the curative dose is given as 3·0–6·0 g. of pressed yeast, a dose more than twice as high as that of wheat germ (1–2·5 g.). Dunham gives 0·5 g. of dried yeast as the dose necessary to re-establish completely growth in young rats kept on a diet free from vitamin B. According to Kennedy and Palmer the vitamin B extent of yeast obtained from different sources as tested in rats varies considerably. They state "our results do not support the general belief that yeast is an unusually valuable source of vitamin B." One of the most satisfactory preparations tested by them was a baker's yeast, of which 0·6 g. of the dried material was required to establish satisfactory growth. A comparison with wheat embryo showed that the latter was a most reliable source of vitamin B. Drummond, McCollum, Hawk, and collaborators have given similar figures of 0·6 g. of dried yeast. Our own observations on rats were made with dried baker's yeast, dried at 100° C. An amount of 0·5 g. of dried yeast equal to 1·5 g. of fresh yeast was found necessary to ensure complete recovery from vitamin B deficiency. Taking all these observations together, we shall therefore not understate the vitamin B content of fresh yeast as used for baking if we put it equal to that of sterilised wheat germ, of which, as stated above, 0·5 to 1 g. are required. It may be pointed out that these absolute values are actually more in favour of yeast than the relative

TABLE II.

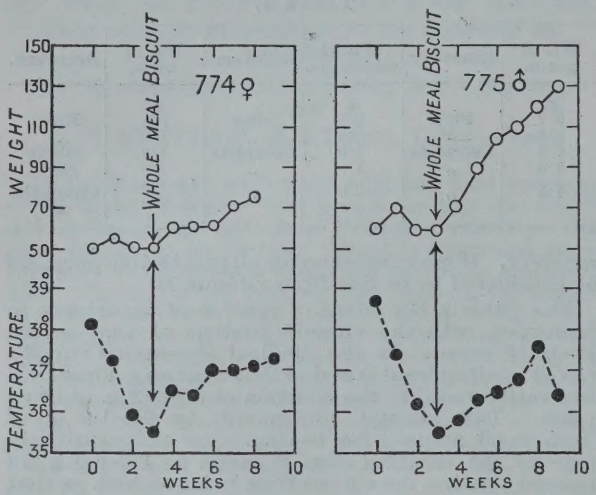
—	White bread.		Wholemeal bread.		Hovis germ bread.	
	A.	B.	A.	B.	A.	B.
Patent flour ..	98	0	70	0	74	0
Middlings ..	—	—	15	750	—	—
Bran	—	—	12	400	—	—
Germ	—	—	1	100	24	2400
Yeast	2	200	2	200	2	200
Total* ..	—	200	—	1450	—	2600

A = Percentage amount } of milling products and of yeast.
B = Vitamin B content }
* Vitamin B content in 100 g. dried bread.

values given by the report of the Medical Research Council, p. 41, where the vitamin B content of yeast is given as representing only 60 per cent. that of wheat germ.

These data enable us to compare the vitamin content of the various kinds of bread: ordinary white bread, wholemeal bread, and germ bread made of Hovis flour, which contains one part of sterilised germ and three parts of patent flour. Vitamin B is so resistant to moderate heat that, as pointed out in the report of the Medical Research Council, the loss resulting from

the process of baking is only slight. If we put the vitamin content of 1 g. of wheat germ as 100, then middlings are 50, bran 33, white flour 0, yeast 100. The amount of yeast added to flour in the baking of



bread is 2½–5 lb. per 280 lb. of flour—i.e., a maximum of 2 per cent. as given in Table II.

These figures offer a striking comment on the statement which has been made repeatedly that the absence of vitamin B from white flour is of no practical importance, since in the process of baking yeast is used which is supposed to be so rich in the vitamin that it makes up for its absence in the flour. This statement is obviously made without any quantitative consideration either of the small amount of yeast used in baking or of its vitamin content as compared with that of the various milling products of the wheat. The significance of the figures given in Table II. is even more striking when we try to estimate the amount of the various kinds of bread necessary to furnish an adequate supply of vitamin B under conditions in which bread is the only source of supply of this vitamin. From the data given above it follows that the minimum amount of vitamin B necessary to enable a rat rapidly to resume growth and to regain a normal temperature on the basal ration is contained in 0·5 to 1 g. of wheat germ and in about 1 g. of fresh yeast. It may be added that this is by no means the optimum amount which may be a good deal higher. We may put the minimum amount, therefore, at 50 to 100 units. If bread is the only source of supply of this vitamin, then a rat in order to get this amount would have to consume daily (calculated as for dried bread) :—

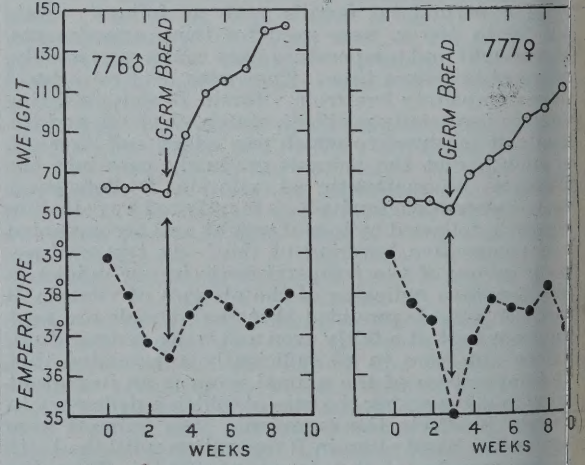
White bread ..	.. 25 to 50 g. = 250–500 %	of basal ration.
Wholemeal bread	.. 3 „ 6 g. = 30–60 %	
Hovis germ bread	.. 2 „ 4 g. = 20–40	

Since a rat of 100 g. weight only consumes about 10 g. of dried food material of a properly compounded ration, it is obvious that on a diet of which white bread is the only source of vitamin B it cannot obtain a sufficient amount of vitamin B to maintain its health. This is confirmed when tested experimentally. Rats were kept on the basal ration free from vitamin B. The addition of 2 g. of air-dried Hovis germ bread or of 3·5 to 4 g. of wholemeal bread was sufficient to ensure complete recovery. The addition of 5 g. of air-dried white bread (50 per cent. of the diet) or the substitution of bread for casein (100 per cent. of the basal ration) was unable to effect recovery and the rats died. A large number of each experiment have been carried out. The results are consistent in showing that the vitamin B content of any particular kind of bread as determined directly by feeding experiments corresponds closely to that evaluated by the calculation given above. Therefore, if it is known what relative amounts of the different milling products any particular bread contains, and if these milling products have not been subjected to any process which destroys their vitamin B content, it is possible to evaluate the vitamin B content of the bread from the data given above.

It seemed of interest to compare the vitamin B content of various kinds of "brown bread" sold under different names. Their methods of manufacture were unknown to us. These "brown breads" were found to differ widely. Some of them were about as rich in vitamin B as wholemeal bread. One particular form of "brown" bread was found to be poor in vitamin B. We merely mention this in order to bring out the point that the "brownness" of bread is not a measure of its content in vitamin B.

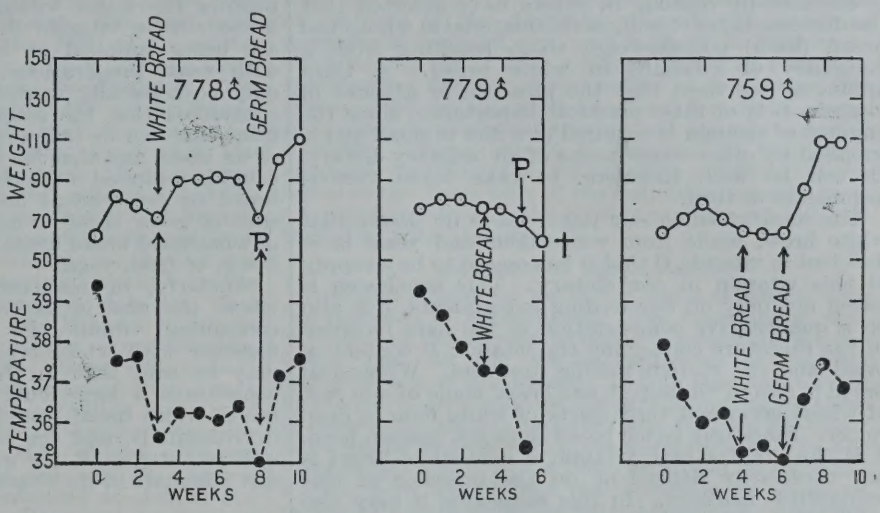
We have already mentioned that the introduction of roller mills probably brought about a material change in the dietetic habits of the population, by removing one of the main supplies of that vitamin from the diet. It seemed of importance to test this point by estimating the vitamin B content of bread made from stone-milled flour. Accordingly, flour stone-milled according to the old process was prepared for us in two different grades of fineness—namely, 56 per cent. extraction and 50 per cent. extraction. The 56 per cent. extracted stone-milled flour was found to be rich in vitamin B, 3 g. being sufficient to ensure recovery when added to a vitamin B free basal ration. The 50 per cent. extracted stone-milled flour was less abundant in vitamin B; 4 g. of this flour (40 per cent. of diet) led to only incomplete recovery. The minimal amount necessary to ensure complete recovery could not be determined as only a small amount of the flour was available. These experiments are sufficient to show that the introduction of roller mills did bring about an important dietetic change.

It is clear from what has been said that white bread is an article of diet practically free from vitamin B. The same conclusion is arrived at whether the vitamin content is determined directly by feeding experiments or whether it is calculated from the



The charts have been selected from a large number of experiments as illustrating the vitamin B content of white bread, germ bread, and of wholemeal biscuits (made without yeast). The experiment with biscuits is given as an illustration of the unimportance of yeast as a source of vitamin B in bread. The germ bread used was Hovis bread. The clear circles represent the weights of the animals, the dark circles the temperatures. It should be noted that the first temperature reading is almost always too high, because the rat reacts to the unaccustomed handling by a slightly raised temperature. In every case the animals were placed for three weeks (first weeks with rat No. 759) on the basal ration free from vitamin B, which produced the typical effects (cessation of growth, fall in weight and temperature). Then the various kinds of air-dried bread (or biscuits) were added to the ration so that the bread represented 33 per cent. of the whole diet. The charts show immediate complete recovery with germ bread (Nos. 776 and 777), a somewhat slower recovery with wholemeal biscuits (Nos. 774 and 775), a continued decline with white bread (Nos. 778, 779, 759). Two rats of the last group developed paralysis of the hind legs (P.). Of these, one (No. 779) died, the other (No. 778) recovered rapidly when germ bread was substituted for white bread. A third rat (No. 759) did not develop paralysis, but was so ill that it would have died in the next few days if white bread had not been replaced by germ bread, which led to a rapid recovery.

nount of yeast present in the bread and the vitamin ntent of the yeast. Reference has already been ade to observations (Hartwell) which are supposed show that white bread contains a considerable nount of this vitamin and to the explanation given at white owes this vitamin B content to the yeast lded in the process of aking. It is obvious from nsiderations both of our vn and of previous obsertions on the relative nount of vitamin B in ast and in the different illing products of the heat grain that this exanation must necessarily erroneous. It is necesry, therefore, to consider e experimental evidence which Hartwell's consions are based. The ual method of testing for e presence of vitamin B to keep rats on a basal ion adequate in every ner respect but known be free from this amin, as evidenced by e well-known effects on wth and temperature, and to add the article of t to be tested to this basal ration. This is the thod adhered to in our experiments. Hartwell, wever, kept the animals from the beginning the experiment on a diet of white bread, butter t butter-fat), a salt mixture, and water. On s diet the rats increased in weight and so far as recorded evidence goes showed no obvious signs vitamin B deficiency. The temperature of the mals was not taken, but it is stated that they were re susceptible to cold. This experimental arrangent is obviously faulty because it does not provide any controls to show that vitamin B may not ve been supplied by the only other article of this t—namely, the butter. It has frequently been wn that butter may contain considerable amounts vitamin B. Moreover, Hartwell carried out one ies of experiments with bread made with baking wder, in which no yeast was added in the process baking. Since, according to Hartwell's contention, addition of yeast gives to white bread the relative h vitamin B content which she claims for it on the is of her experiment, baking-powder bread should very poor in this vitamin. But the rats kept on king-powder bread and butter showed good growth ich was only slightly less than that of rats kept on ter's bread, made with yeast, and butter. No lanation is given for this result. It is clear, refore, from her own experiment, that in Hartwell's t the main supply of vitamin B which enabled rats to grow came from the butter and not from various white breads tested by her. It is to be retted that on the basis of these faulty experints Prof. V. H. Mottram, in whose laboratory se experiments were carried out, should have olished in popular writings the erroneous statent that white bread contains an abundant supply vitamin B and is not greatly inferior in this respect wholemeal bread or germ bread, and that as the ult of this propaganda this error should have been ely accepted.



General Discussion.

he discussion on "white bread and brown bread" suffered as much from the uncritical enthusiasm he advocates of "brown bread" as from the faulty ements of the defenders of white bread. It has n suggested, for instance, that a lower grade of ling should be adopted. But what the miller has dered the baker can put together again, so that g patent flour as a basis any desired admixture of other vitamin B containing milling products of wheat grain can be used for baking. It must also be considered that flour containing any part of the germ does not keep well for any length of time and cannot therefore be shipped, transported, or stored in bulk, so that it is not adapted for the supply of countries with dense populations. A high grade of milling is therefore an economic necessity. The high grade of milling has the further advantage that after separating the germ, methods of treating it can now be employed which without destroying its vitamin B content greatly prolong its ability to keep without deterioration. There is lastly the question of taste. Bread is not eaten as a medicine but as a regular article of diet, and many people prefer white bread to "brown bread" on the ground of taste. This may be partly due to the fact that it is more troublesome to make a good loaf from wholemeal bread than from white flour and partly to the presence of bran in wholemeal bread. On the other hand, there are also people who, on the ground of taste alone, prefer "brown bread" to "white bread."

The question of taste cannot be discussed on scientific grounds. But the nutritive value of different kinds of bread can be so discussed if the discussion is based on accurate data. The nutritive value of bread depends on a number of factors such as the content and the nature of the proteins, the content in carbohydrate, inorganic salts and water, its digestibility, and on its vitamin content. Before the discoveries of the vitamins all the other factors mentioned above had been repeatedly and carefully examined, and data concerning them can be found in many text-books on food or dietetics (see, for instance, R. Hutchison, Cohnheim). Generally speaking, the most important difference between white bread and wholemeal bread has in the past been attributed to the presence in the latter of the bran, because it affects the digestibility of bread. By the term digestibility is meant the extent to which the proteins and carbohydrates of bread are absorbed from the intestinal canal. There is a general agreement that with wholemeal bread, on account of the bran which it contains, the absorption of protein is less complete than with white bread. The absorption of bread such as Hovis bread, which is made from germ and white flour, and which does not contain any bran is nearly as complete as that of white bread (Goodfellow). While on these grounds the presence of bran in wholemeal bread has been looked upon as a disadvantage clinicians have recommended in the past wholemeal bread for its laxative effect. This they have ascribed to the presence of the indigestible material in wholemeal bread which was supposed to act as a mechanical stimulus to peristalsis and to the absence of which in white bread they attributed the constipating effect of the latter.

The discovery of the vitamins has added a new factor to the discussion on the question of the nutritive value of the bread, and it is this new factor around

which the recent controversy has centred. The recent discussion has suffered from an inaccuracy of the experimental data concerning the vitamin B content of the different kinds of bread and from a confusion of issues. Some authors have denied that white bread is deficient in vitamin B, others have asserted that the disadvantages of indigestible material in wholemeal bread (bran) counterweigh those resulting from a deficiency of vitamins in white bread. A third argument has been that the presence or absence of vitamin B is of little practical importance, since the amount of vitamin B required in a diet is small and is supplied by other constituents of an ordinary dietary. It will be well, therefore, to take these various arguments in turn.

The data given in our paper leave no doubt that white bread made from white flour and yeast is so deficient in vitamin B that it has ceased to be a supply of this vitamin in our dietary. This conclusion is based not only on our feeding experiments, but also on a quantitative consideration of the data recorded in the literature concerning the vitamin B content of yeast and the various milling products. Wholemeal bread is rich in vitamin B, and bread made of one part of wheat germ and three parts of white flour is even richer. Since this latter bread does not contain bran, it is clear that a high vitamin B content of bread is not necessarily dependent on the presence of this indigestible material. In this connexion it may also be pointed out that the constipating effect of white bread is probably due to the absence of vitamin B and not to the absence of indigestible material which is supposed to act as a mechanical stimulus. We have shown previously (Cramer 1923, 1924) that substances rich in vitamin B have a laxative effect, while in the absence of this vitamin there is constipation. This has been confirmed by Gross. It is also shown in an experiment on a dog recorded by Karr, in which the weight of the fæces excreted fell from 59 g. to 46 g. on a diet free from vitamin B and rose suddenly on the addition of this vitamin to 90 g.

The last question, whether the deficiency of white bread in vitamin B constitutes a serious dietetic error, requires a more detailed consideration. Our previous experiments, as well as those of McCarrison, have shown that the amount of vitamins required by an organism to maintain it in good health is much greater than that necessary to prevent or to cure the so-called specific deficiency diseases. Even a partial deficiency of vitamins in the diet or "vitamin underfeeding," as we have called it, if lasting for any length of time impairs health, and if it falls on children prevents perfect development. Quite recently this view has been endorsed by the observations of other workers (see, for instance, Rowlands and Plimmer). The idea which prevailed previously that the non-appearance of beri-beri in a population is a guarantee that the diet contains an adequate amount of vitamin B is, therefore, erroneous. Our present knowledge of the mode of action of the vitamins suggests that they have a specific stimulating effect on the functional activity of certain tissues. There is, in fact, a close analogy between this specific stimulating function of vitamins and the function of hormones. There is a similar analogy between the varying degrees in the impairment of health due to an inadequate supply of these two groups of agents.

Now cereals represent one of the main supplies of vitamin B in the human dietary, and before the introduction of the roller mills the stone-milled flour did represent an important source of supply of this vitamin. White bread has ceased to fulfil this part. On a varied diet which includes milk, butter, eggs, porridge, potatoes, and other vegetables, the absence of vitamin B from bread may not be a serious defect. But the people who can afford such a diet do not eat much bread anyhow. It is among the poorer classes, and especially the children of the poorer classes, where bread represents the bulk of the daily diet, and where butter is replaced by margarine that the absence of vitamin B from white bread has to be considered as a serious dietetic defect. Reports of medical officers of health show that many of these children live on a diet composed of white bread, margarine, jam, and fish with perhaps some potatoes. Such a diet is certainly deficient in both vitamin A and B and could be made adequate as regards the latter vitamin by the consumption of bread rich in vitamin B. At present these children are being supplied at welfare centres and schools with yeast preparations, a procedure which is not only economically wasteful but also absurd if it is considered that the amount of these yeast preparations that can be taken is relatively small on account of its taste, and that far larger amounts of vitamin B could be supplied if the children were given wholemeal bread or germ bread instead of white bread. One slice of germ bread weighing an ounce or two slices of wholemeal bread contain about as much vitamin as 5–6 g. of fresh yeast.

Similarly, in institutions, boarding-schools, &c., where the diet is likely to be monotonous, bread containing vitamin B should always be offered together with white bread. As a practical rule, it may be said that in those conditions when bread constitutes a large bulk of the diet, the exclusive use of white bread would make the dietary deficient in vitamin B, and the partial substitution of bread rich in vitamin B for white bread would make the diet adequate in its vitamin B content.

Summary.

1. In accordance with the observations of previous observers, it was found that wheat germ is very rich in vitamin B. It is at least equal in that respect to yeast.

2. The various milling products of the wheat grain contain vitamin B in the following proportions, taking the vitamin B content of yeast = 100 :—

Germ	100	Bran	33
Middlings	50	Patent flour	0

3. The vitamin B content of different kinds of bread depends upon the milling products used in the making of bread. The vitamin B content of the amount of yeast added in the baking of bread is too small to be responsible for a significant addition to the vitamin B content of bread. The vitamin B content of different kinds of bread, as calculated from the amounts and the vitamin B content of the various milling products and yeast used in the making of the breads, corresponds closely to their vitamin B content as determined experimentally. Thus white bread made with yeast is very poor in vitamin B. Wholemeal bread and the germ bread examined by us are very rich in vitamin B. The latter differs from wholemeal bread in being free from bran, so that, contrary to what has been stated, richness in vitamin B is not necessarily dependent upon the presence of indigestible material.

4. The significance of these findings in relation to dietetics is discussed. It is pointed out that the nutritive value of different kinds of bread, if treated as a practical problem of dietetics, must be considered in relation to the diet as a whole. Where the constituents of the diet other than bread are poor in vitamin B the nutritive value of white bread is definitely inferior to that of bread rich in vitamin B.

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(*Continued at foot of next page.*)

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Dentists Bill and "Treason."

THE Dentists Bill led to some warm debates last ek in committee in Dail Eireann. The first tussle ne over the proposal in the Bill which recites reason" as one of the offences for which the name a dentist may be erased from the Register. The etion of the clause was urged by Dr. Ryan (Fianna il), who was supported by Mr. De Valera and other mbers of their party. It was urged that the inition of treason was to a great extent a party tter, and that a respectable man who incurred the pleasure of the party in power might find himself victed of treason and permanently debarred from ctice as a dentist. On the other hand, the Governnt stood firm by their clause and backed by the bour Party and the Independent Members, they l a considerable majority. The Minister in charge the Bill, Mr. McGilligan, usually very accurate, de a blunder in defending the clause. He asked: id the Deputy think for one moment that a man victed of treason against the English State, and ased after being sentenced to death, would be wed to practise under the British Medical gister?" There is at least one case in which a n convicted of treason, sentenced to death, and ased, has become a registered medical practitioner hout let or hindrance. Moreover, a medical man nd guilty of treason in Dublin in 1916 and sentenced 20 years' imprisonment has continued to practise e his release some months later, and his name er was erased from the Medical Register. As a tter of fact the word "treason" does not occur the Medical Acts, although, as Mr. McGilligan ated out, the offence is no doubt adequately ered by the term "felony."

discussion of more immediate interest to medical n was concerned with the proposal in the Bill to hibit any dental work being done by medical ctitioners except in urgent cases. The clause was cked by Sir James Craig, Dr. T. Hennessy, and t of the medical deputies on both sides of the use. The impossibility of making the clause ctive in country practice without grave hardship the poor was stressed by several speakers, and nately the Minister agreed to the deletion of the se. He added, however, that it might be necessary, later stage, to introduce another amendment to ten up the section.

Abolition of Workhouses.

he recommendations of the Commission on Local ernment in Northern Ireland, briefly summarised THE LANCET of Nov. 12th (p. 1041) include the lition of workhouses. There are at present workhouses in Northern Ireland, most of them empty or more than half empty. One of the t pleasing features of the evidence given before Commission was that it showed the gradual disearance of destitution from Northern Ireland. existing workhouses could with great advantage, ally and economically, be replaced by a limited ber of county homes (perhaps three in all for the area) where the conditions of life would be much more comfortable and home-like than is possible in the existing workhouses. Able-bodied persons admitted to county homes should be subject to strict discipline and employed in useful work in connexion with the home. The Commission recommends that all children of the destitute class should, as far as possible, be boarded out, and that all limitations to the boarding out of such children should be removed. It suggests a number of regulations to secure that this system shall be on sound lines and free from abuse. It is recommended that tramps and casuals requiring a night's lodging should be directed to the police barracks, and that the police, after satisfying themselves of the bona fides of the individual, should issue a recommendation to the relieving officer, who should then deal with the case.

Treatment of Tuberculosis.

Another section of the report deals at length with the question of tuberculosis. The Commission considered that the present methods of treatment are too costly and on the whole ineffective as regards stamping out of the disease. It held that sanatorium treatment is only suitable for early cases where there is reasonable hope of recovery and that all advanced cases should be dealt with in other institutions. Two or three sanatoriums, it was thought, would be sufficient for Northern Ireland, and that provision for advanced cases might be made in the district hospitals. The view was expressed that advanced cases are the most infectious and are unsuitable for domiciliary treatment. The Commission recognised the great value of sanatoriums as educative agencies for patients and for the public generally. The lack of institutional treatment for non-pulmonary forms of tuberculosis was emphasised, the only institution for this purpose in the area being the Graymount Hospital for Children. The adoption of the Tuberculosis Acts is at present permissive, and the Commission held that they should be made obligatory on all county health committees.

SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

Treatment of Cripples.

SOME time ago a committee was formed in Edinburgh to consider the establishment of a special hospital for cripples. The earliest conference decided that a central orthopædic hospital should be built on the outskirts of Edinburgh; that major clinics should be formed in the more populous centres of the counties; that minor clinics should be formed in the remoter parts; and that coöperation between existing hospitals and the new central orthopædic hospital was essential. Steps were taken to collect funds, the sum aimed at being £75,000. Everybody in the movement agrees that a special hospital is the only means of dealing efficiently with the complicated group of problems covered by the term "cripple." Many small organisations have been working for years and have done good work, but the range of orthopædics has rapidly developed. The education authorities have been obliged to make certain provision in schools for physical defectives, but the deformities of growth are themselves a host, and the value of electricity, massage, ultra-violet light, hydrotherapeutics, remedial gymnastics, and their combinations is only beginning to be understood. The work is far beyond what any "acute" hospital can undertake, for time is the essence of the treatment. The projected hospital will certainly not want for cases. It is understood that the Scottish Board of Health are ready to consider this new development as a part of the child welfare and school schemes, and to judge by the favourable local reception, the committee should soon raise enough to justify them in proceeding with site and plans.

Administrative Lacunæ.

At a meeting of the Medico-Chirurgical Society of Edinburgh, held on Nov. 2nd, when the new President,

(*Continued from previous page.*)

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Dr. Logan Turner, took the chair, a paper on the scheme was read by Prof. John Fraser. It was agreed, he said, that the term "cripple" should not include the blind, the deaf mute, or the mentally defective, but should comprise all children below the age of 16 whose affliction was capable of remedy. It was difficult to say how many cripples of this class there were in South-East Scotland, but the Scottish Board of Health had estimated that there were 753 in the five groups: severe rickets, tuberculous disease of bones and joints, poliomyelitis, and congenital and other crippling deformities. Legislative machinery already existed for the treatment of cripples, whatever their malady, up to the age of 5, but later only such conditions as tuberculosis and infantile paralysis were provided for. Child welfare centres had to refer cases to special or general hospitals, and something under a hundred beds were available for their accommodation. This was quite inadequate. The type of institution required must be built to provide sun, wind, and fresh air. Further treatment might be for a long period combined with education of the patient, and later continued at home. Cripple homes were not a solution as no treatment was provided. The present scheme aimed at seeking the cripple in the earliest state and at following him until he was restored to well-being and efficiency, so far as was humanly possible. Minor clinics would be on out-patient lines and would be situated in small towns or villages and attended by a nurse who could apply appropriate massage and splinting under the supervision of local practitioners. These centres would be visited regularly by a central orthopædist. Record cards would be made of all cases; these would be available to the family doctor and health authorities. The major clinics were intended to be part of the general hospitals of towns and more specialised treatment could be carried out in them. Central orthopædists would visit and collaborate with the hospital staffs. The new Edinburgh hospital, said Prof. Fraser, would be built on the outskirts of the city and would take 75 patients. Among the speakers who discussed the paper was Miss Gertrude Herzfeld, who, speaking as a surgeon of a children's hospital, said that the scheme would be useful for all after-treatment, but thought that all the cases should first come, as they do at present, to the children's hospital, where initial treatment should be carried out.

Hospital Coördination.

The relative position of the voluntary and other hospitals was referred to recently by Sir John Gilmour, Secretary of State for Scotland, in a speech at Falkirk. He laid down the fundamental proposition that any scheme which did not utilise to the full the available resources of existing hospitals required overhauling, and commended the kind of solution to this difficulty which was being observed in the Aberdeen area, where the Poor-law authority had handed over its hospital to be administered by the city of Aberdeen and where there was a complete and cordial coöperation between the voluntary hospitals in the training of nurses and University students.

Of the £400,000 aimed at for the new Royal Infirmary, Aberdeen, a sum approaching £260,000 has already been subscribed.

NOTES FROM INDIA.

(BY OUR OWN CORRESPONDENT.)

Tropical Medicine Congress in Calcutta.

As your readers will be aware by this time the Government of India has invited the Far Eastern Association of Tropical Medicine to hold its Seventh Congress in Calcutta next month. All Calcutta is athrob with excitement and pleasure at the prospect of welcoming so many distinguished visitors. Many scientific sections and demonstrations have been arranged, all devised to stimulate us to deeper investigation of hitherto unexplored regions of the principles and practice of medicine in the tropics. Short tours have been planned to places of interest in Calcutta and throughout India, and no effort is being spared by the Calcutta Local Committee to afford every Congress delegate a pleasant memory of his visit to India.

Public Health Policy.

One may hope that the Congress will do something to arouse the national consciousness of India towards a considered health policy. The Reforms Act of 1919 relegated public health to the care of provincial governments. In 1926 the Government of India held that the general direction of a policy of public health must remain in its own hands, on the grounds that considerations of public health should permeate all fundamental legislation and receive a definite place in the administration. At present, instead of a clear pronouncement from a central responsible government we have merely a number of provincial authorities in charge of the health of India, with the result that the public health executive is at the mercy of local politics. Until the political horizon clears there will be little improvement in dealing with the public health problem.

The Calcutta Medical Degree.

The same policy of relegating to provincial control the details of medical education—the standard of education being still presumably with the central government—led in 1925 to misunderstandings with regard to the recognition of the Calcutta M.B. examination by the General Medical Council. It is greatly to the honour of the Council, guided by the prudent and temperate report of Sir Norman Walker after his inspection of the affiliated colleges and the examinations, that they made the first move in rapprochement and have expressed a willingness to consider any application for renewal of recognition from Calcutta University, provided that the new regulations be immediately introduced in the early years of the curriculum. The University authorities having agreed to this, it is hoped that Calcutta graduates will be enabled to prosecute further studies in England and to obtain higher degrees without having to appear before any of the home examining boards. The Medical College of Calcutta especially felt this loss of recognition keenly, founded as it was in 1825, 20 years before any other medical school or college in which instruction in the preliminary medical sciences was provided side by side with clinical teaching; and its examinations at the conclusion of the curriculum included the three branches of medicine, surgery, and midwifery. What a striking testimony to the foresight and sagacity of the medical officers of the Honourable East India Company.

Pure Food and Drugs.

India stands in great need of legislation for ensuring the purity of its food and drugs. That the cult of quackery prevails in every branch of medical and surgical science is readily seen from the multitude of advertisements in every vernacular paper. Manufacturers and vendors of counterfeit drugs and chemicals are legion. At present they can only be prosecuted in a civil court at great expense and loss of time. To render such transgressions criminal will require a Food and Drugs Act. But under the new régime this is a matter for each individual province, and it is to be feared that there will be considerable delay before India falls into line with the usages of other countries under the League of Nations in this respect.

Scientific or Empirical Treatment?

A storm has arisen among the indigenous medical practitioners over the statement made by Mr. T. Pilcher, M.P. for Falmouth, in which he is reported to have said that "at the clamour of the Indian politicians, the Government of India has been forced to give State aid to the preposterous Ayurvedic and Yunani systems of medicine prevalent throughout the country." The practitioners of the former system claim that a modification of Ayurvedic medicines is more suitable to the needs of India than the imported

oreign scientific system. It is true that religion and ntiquity venerate Ayurveda, but it is clear that only o long as scientific education in India remains at its resent low level can a purely empirical system of reatment prevail and then only among the less nlightened.

Beri-beri and Epidemic Dropsy.

The question of the ætiology of beri-beri has come gain to the fore by reason of the recrudescence of the isease in Madras and Calcutta and in many rural reas. Urgent requests for a committee of investiga- ion have now been made to local governments. The isease known as epidemic dropsy which, having died ut in 1890, again appeared in 1907 and is now epidemic ach year in one or other district in Bengal, has still o be clearly defined in its relation to beri-beri. Vell-organised investigation might definitely establish ie ætiology of both.

Public Health Services.

MENTAL HOSPITAL REPORTS.

Devon Mental Hospital at Exminster, at the id of 1926, had 1227 patients on its registers. The neral recovery-rate was 35·53 per cent., but the ure for the private patients works out at 69·8 per nt. for a total of 294 admissions. The death-rate r this year was 9·17 per cent. The increase on last ar's low figure of 6·6 per cent. is chiefly due to cases of pneumonia, for some of which the coal strictions were undoubtedly responsible. No deaths curred from typhoid, and only two from enteritis. utopsy was performed on 69 per cent. of the patients no died, an absolute increase of 26 operations. No dsores at all were reported throughout the year. ie incidence of tuberculosis is still somewhat high, patients being isolated. The hospital has always been oubled with sporadic typhoid, and in the autumn 1924 preventive inoculations were introduced, since ien only one patient has been suspected of the sease. Even in this case all cultures were negative. idal tests have also shown the efficacy of the oculations. The drainage system has been tested d will doubtless be set in order at once. The edical superintendent speaks with caution about e results of malaria treatment in 13 cases of general ralysis. Three died of intercurrent affections, one s been discharged and remains well, two are con- erably improved, and the remaining seven slightly proved. The figures contain a promise which is nfirmed by the results obtained by others, that this thod gives some beneficial results in nearly all ses. The consulting surgeon made 60 examinations d performed 10 major operations, most of which ulted in great mental improvement; cholecystec- ny and the relief of a strangulated hernia respectively abled two patients to take their discharge. The diologist examined 60 patients, and his work has en much facilitated by the provision of a 10 K.V.A. h-tension transformer. An ophthalmic consultant ends monthly and examined 61 cases during 1926, ding a considerable amount of chronic disease ing from before admission. The dental record ludes 425 examinations, 117 extractions, and dressings and fillings. The aggregate number of ients and staff which has received benefit from consultants' services is 300. A fortnightly out- ient clinic is maintained in Exeter, and the perintendent pleads for facilities for bed-treatment al psychotherapy. 124 patients have been on parole ly within the walls and 45 have been given extended vileges; only four cases of abuse have occurred. ere are now 11 open wards, allowing free entrance al exit to 270 patients, and open single rooms are be provided and allotted as a privilege. The list of icles manufactured by patients is impressive. All stationery, including the annual report, is printed he institution, and patients are employed in book- ding, weaving, mat-making, net-making, upholster- ing, shoe-making, sewing, and knitting. Nearly all earthenware utensils have now been replaced by aluminium. The patients' play is as varied and as well organised as their work. Two additional loud-speakers have been purchased and programmes can be reproduced, by an ingenious use of the house-telephone system, at any point or points where they are required. Among new improvements are a verandah to the female receiving ward, a dwelling-house which was purchased as a home for private patients and which now accommodates 30 nurses, and an ultra-violet light apparatus. Clinical rooms are now attached to all but three of the wards and a sheltered gallery has been built opening out of the men's infirmary. The laboratory staff made 1440 investigations. Thirteen nurses passed the final and 13 the preliminary M.P.A. examinations. Female nurses have now been posted in the isolation hospital and male infirmary, and are proving a success. The report of the Visiting Commissioners indicates that the diet might be revised with advantage, and points out the need, in conjunction with the operating theatre, of sterilising, waiting and surgeons' rooms. The annual report is illustrated with two excellent photographs and does credit to the hospital printers.

Dorset Mental Hospital.—On the last day of December, 1926, 902 patients remained—an increase of 35 for the year. Of the direct admissions 31·61 per cent. were discharged fully recovered, and the death-rate has fallen to 5 per cent. from 5·5 per cent. last year and 8·2 in 1923. Post-mortem examinations were held in 52 per cent. of the deaths. For the first time in at least nine years no dysentery or typhoid was experienced, but five carriers are still in the hospital. There was no other epidemic sickness. Ten patients are under treatment for pulmonary tuberculosis. The consulting dental surgeon, who visits fortnightly, examined 276 patients. Additions to the hospital include a solarium in course of construction and a chlorinating plant; an out-patient clinic is held weekly in Dorchester. Ten patients were sent out on trial; 62 had extended parole and 27 restricted parole. The vacancies on the male side were 99, but there was one female inmate over the establishment. An operating room is nearly completed and a dental room is in use. The male admission ward has been rearranged and now has its own verandah and is to have its own continuous bath. The total number of routine examinations performed in the laboratory was 536, and 216 tests were undertaken in the search for typhoid carriers. The Boltz test is carried out on all cerebro-spinal fluids and is invariably negative in psychoses and positive in general paralysis. Tryparsamide has been used in the treatment of five general paralytics; one was discharged recovered, two were greatly improved, and two advanced cases failed to benefit. The improvement showed itself chiefly in the gait, speech, and mental condition. A research into the records of male patients for the past 40 years established that extraverts develop syntonic and introverts schizoid types of psychoses. Fifteen male and 14 female nurses are certificated or registered; ten nurses passed the preliminary and 13 the final M.P.A. examination during the year. The Commissioners recognise the need for an admission hospital, without which they say that no mental institution can be considered to be equipped in accordance with modern ideas.

Kent County Mental Hospital at Barming Heath, Maidstone, showed a total of 1855 residents at the end of 1926, as against 1793 at the beginning. There are vacancies for 19 males, but the female population is 58 in excess. The death-rate, 5·1 per cent., is the lowest yet recorded, and autopsy was performed on 95·8 per cent. of the cases. The recovery-rate was 34·4 per cent., somewhat below the average owing to the low rate of 22·9 per cent. on the male side; no zymotic disease occurred. Malarial treatment for general paralysis is to be resumed and a solarium has been built for recent male cases. Sixty-seven patients had parole outside the walls and 140 inside; 65 were allowed out on trial and 24 of these received money

allowances. Many wards have open doors. 67 per cent. of patients are now occupied, and the occupation officer has taken over the direction of the tailoring and boot-making shops. An occupational treatment room has been started for noisy patients. The Visiting Commissioners praised the high standard maintained by the staff and the well-organised system of training that exists here. Out of 178 nurses 74 are certificated or registered, and 35 have passed the preliminary examination. The Commissioners especially remarked on the quietness of the wards at night.

Chartham Down, near Canterbury, the other Kent hospital, houses 1228 patients, 46 more than last year. The superintendent and the Commissioners regret the influx of young mental defectives, a trouble not confined to this institution. The death-rate was 8 per cent. and the recovery-rate 32 per cent.; 67 per cent. of the deaths were verified by autopsy. The general health was satisfactory, as only slight influenza and no dysentery were reported. The disease incidence appeared high on account of the admission of ten persons with active tuberculosis. An X ray outfit is being installed, and the whole building is now lighted by its own electrical plant. Results of the Starke method in general paralysis, and of luminal in epilepsy, have been favourable. Parole is allowed to 46 patients outside the estate and 86 within; some of the wards are "open door" and some carry the privilege of sitting up after the usual retiring hour. The hot-water supply has been improved and plenty of hot water is now available, but the ward heating remains erratic and extravagant. The sanatorium has been turned into quarters for 30 nurses. Fifty-two out of the 146 nurses are registered or have certificates.

Brighton County Borough Mental Hospital at Hayward's Heath shows an increase of six in its population, the total at the end of 1926 being 834. Except for 16 cases of chronic tuberculosis, three exanthemata, and a few minor accidents, the general health has been excellent. The death-rate was 7·5 per cent. with post-mortem examination in 76 per cent. of cases, and the recovery-rate was as high as 48·9 per cent. Vaccine treatment has been tried and gave good results in one case of acute mania with hallucinations, who was removed somewhat prematurely after nine weeks but has remained well. Of five general paralytics sent elsewhere for malarial treatment one has returned much improved, three are reported as improving, and one is unchanged. The dental surgeon examined 570 patients, and an operating theatre and pathological laboratory are being constructed. The weekly clinic in Brighton treated 99 patients. Only 16 per cent. of the patients discharged were sent out on a previous trial, and the Commissioner urges in his report an extension both of this measure and of the granting of money allowances, which were given only in four cases. Parole is given to 80 inmates, of whom 33 are allowed outside the grounds, and one ward on each side has open doors. Additions to the building include a clinical room, a sewing room, and a waiting-room, but it appears that verandahs are still badly needed. Week-end leave was granted on 36 occasions and absence for the day with friends on 55. Patients attend the pictures locally and in Brighton, and local cricket and football matches and fêtes. The dietary has been improved in quality and variety. 57 per cent. of the male and 30 per cent. of the female nurses now hold certificates.

West Sussex County Mental Hospital, Chichester.—Here 779 patients were under treatment at the end of 1926, 31 more than at the end of 1925. The death-rate was low, 5·15 per cent., and the recovery-rate 36·15 per cent. An influenza epidemic broke out early in 1927, but except for one case of paratyphoid and one of chicken-pox the hospital was free from infectious disease in 1926. A dental surgeon visits fortnightly, and three other consultants are retained. Forty-six patients were allowed out on trial during last year; 17 were given outside and 55 inside parole. The new water-softening plant should make for comfort and economy. Nine nurses passed the preliminary and seven the final M.P.A. examination, while two passed the G.N.C. preliminary and one the fi The committee recognise the imminent necessity increasing the accommodation for female patients

Hertfordshire County Mental Hospital at H End, St. Albans, now shelters 952 patients, 48 m than last year's population. The recovery-rate v 25·3 per cent. and the death-rate was 5·48 per ce as against 6·52 per cent. in 1925. Autopsies were h in 42 out of 51 deaths. Thirteen cases of intes disease and 11 of tuberculosis were notified, toget with one of diphtheria and two of erysipelas; th was also an outbreak of influenza. The den treated 186 patients, and the surgeon perfor several major operations. The system of parole being extended, and one ward on the male side open doors. Nine nurses passed the prelimin M.P.A. test and two gained the certificate, bringing numbers so qualified up to 35 and 38 respectiv The Commissioners, in their report made in Ju commented on the overcrowding on the female s and on the poor dietary.

City of Birmingham Mental Hospital, Win Green.—The numbers at the end of 1926 were 7 an increase of 13 during the year and an exc of 32 on the authorised accommodation. 355 Birmi ham patients are boarded out with other authorit and fresh accommodation is urgently needed. death-rate, 7·2 per cent., was the lowest in the hist of the hospital since 1850, and post-mortem exami tions were made in 65 per cent. of the deaths; recovery-rate was 30·7 per cent. of the direct adm sions, or, including "relieved" cases, 46·5 per ce Fifty-five out of the 70 patients discharged recovered, and 15 of those discharged as relieved, w allowed out on a month's trial first and maintena or help was given to 40. Nine cases of colitis with deaths occurred in the autumn and two cases pneumonia were notified; seven patients suffe from pulmonary tuberculosis, of whom four d Otherwise the general health was good. Rec admissions are inspected by the visiting dentist, rhinologist, and on the female side by the gyna logist for foci of sepsis, and the results have been v hopeful. Of four cases of general paralysis trea with induced malaria one recovered enough to ret to work, one was improved, and two showed change. In addition to the services of the visit staff the hospital possesses a special treatment bl with operation, anæsthetic, sterilising, electrothera hydrotherapy, and surgeons' and patients' rooms w sanitary accommodation. Parole is being given more patients than before, and has only been abu twice during the year. Selected male patients w taken to the canal for fishing, and female patients outings in the neighbouring hills. 63 per cent. of inmates were usefully employed, the men at t trades or in the gardens and the women on the w of the institution. The clinical rooms have b refitted and modernised.

The sister establishment at *Rubery Hill and Ho moor* housed 1459 patients, 7 more than in 1925, boarded out 320 under contract; this arrange secured 42 vacancies, 18 more than were ever fi during the year. In spite of the bad health of m of the new admissions the death-rate was c 5·67 per cent., on 52·4 per cent. of which autopsy performed. The recovery-rate was 40·1 per cent the direct admissions, with 13·4 per cent. m discharged relieved. Infective disease was sli Six patients were being treated at the end of the y for tuberculosis, two nurses caught scarlatina fr outside, and two cases arose of erysipelatoid infect from deeper tissues. There was no intestinal dise and the average health was good. Large quantitie typhoid vaccine have been used for non-spec protein therapy, and this should increase the gen immunity. General paralysis has been intensiv studied, and pyrexial methods, including malaria protein therapy and combined with removal of se foci and specific treatment, have given varying hopeful results. A bulwark of treatment is concerted attack on focal sepsis in every patient

team of visiting surgical specialists. A mercury-our lamp has been added to the special treatment k, which includes theatre, electro- and hydro-rapy room, dark room, and rooms for surgeons and ients. 391 male and 435 female patients are fully employed. Parole is granted on and off the te, and many improving patients are given week-s with their friends by way of preparation for harge. The cinematograph, films for which are plied by a private donor, is much appreciated. nurses hold the M.P.A. certificate, 26 of whom ed it in 1926. Forty-two passed the preliminary nination during that year. The committee now rd their hospitals at Winson Green and Rubery , with the annexe at Hollymoor, as one hospital er the control of Dr. T. C. Graves, with the title hief medical officer. The divisions will each be harge of a medical superintendent.

Hafford Mental Hospital showed an increase of atients, from 961 to 996, during last year, and is ously overcrowded on the male side. Like all r superintendents, Dr. B. H. Shaw pleads for the er staffing of vacant Poor-law accommodation, the disposal of mental defectives in special insti-ns. The death-rate was 7·42 per cent., and the very-rate 28·74 per cent. for men and 21·74 per cent. women. There has been no zymotic disease for years. A dentist visits fortnightly and an ultra-t apparatus has been installed. Figures for the 100 cases discharged recovered showed that the th's provisional treatment suggested by the al Commission would have been quite inadequate 8, but that 58 need never have been certified if could have had six months' voluntary treatment. superintendent deprecates the scheme of sending patients to a receiving house from which they soon be moved, and points out the shortcomings neral hospitals in the treatment of mental disease ; lvocates an extension of the voluntary system to c institutions. The committee recognise the t necessity for a separate admission hospital. mmodious verandah annexe is being built for male culous patients. In all there are 17 tuberculous nts, for whom there is as yet no special provision. pt for the isolation hospital and a villa the whole ution now has electric light. In addition to its ary work the pathological department is investi-g the diagnostic possibilities of cobra venom, the , of ultra-violet rays, and certain symptoms able to the basal ganglia occurring in dementia x and encephalitis lethargica. No women s are employed on the male side. Sixty-one of aff are registered or certificated.

e population of *Burntwood Mental Hospital*, rdshire, was 936 on Dec. 31st, 1926, an increase ; death-rate for the year was 7·85 per cent. and ery-rate 25·94 per cent. Eight deaths occurred g an epidemic of dysentery which affected tients on the male side. Two cases of general ysis were treated with malaria and both were arged ; one is known to have been at work for onths. A dentist visits regularly. Twenty-eight ts, or one-third of the number discharged, were ent out on trial, 16 of these receiving an allow-

The introduction of a coke-oven, a Hobart , and a potato and fish frier into the kitchen has lerably improved the dietary, but the Commis-s would have liked to see more interest taken creation. More nurses are sitting for their cates, and the number certified or registered is 1. Sixteen have passed their preliminary tests. committee, foreseeing fresh demands on their modation, are pressing for the addition of an sion hospital and convalescent villa. At present ases are admitted into the sick wards, where they imes come in contact with troublesome patients.

Cddleton, the third of the Staffordshire county al hospitals, had 1122 patients in its wards at the last year ; this is one less than the year before. utmost capacity of the building, estimated on irement, is 1127, and overcrowding is acute, in of boarding-out. The admissions were 290, of whom only 76 could be considered recoverable, and this fact is considered by the medical superintendent a weighty argument against building an admission hospital of 50 beds. He advocates an "acute" hospital of 150 beds, with the special treatment block attached ; no recoverable case need then go to the main block nor irrecoverable to the hospital, and no resentment would be incurred among relatives. The death-rate, 6·96 per cent., included 7 deaths from dysentery, 50 cases of which occurred throughout the year, entailing much laboratory work and handicapping research ; 15 of these were children. Fifteen of the 19 carriers were children, many of them from guardians' institutions, and these were fairly certainly responsible for the size of the epidemic. None of them died. No advance in treatment, remarks the superintendent, has been made beyond magnesium sulphate ; when it fails nothing will cure, probably because of secondary infection. The recovery-rate, calculated on the total admissions, was 23·1 per cent. Almost 40 per cent. of the discharges were made under Section 79, but 17 patients only were allowed out on trial, of whom nine received money grants. This hospital accommodates 90 mentally defective children in three wards, and more room is badly needed. The dental surgeon now visits twice a week. Ultra-violet radiation is being introduced and may reduce the present high incidence of tuberculosis ; general paralysis is treated with induced malaria. Although no special occupation officer is employed, no less than 40 per cent. of the male patients are employed on the farm and 26 per cent. of women in the laundry. 32 per cent. are taken for walks beyond the estate, 33 per cent. attend the weekly entertainments, and 40 per cent. go to church. In spite of the poor soil the farm is worked energetically, and the superintendent's report contains much technical matter and a scheme for scientific farming in the future. Although qualified nurses are less difficult to find than they were, shortage of accommodation is still a handicap. Recent improvements include a supplemental water-supply, a cinema, and a class-room in the children's ward. Cheddleton possesses one of the best and largest bands of the mental hospitals of the country, trained by the superintendent.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED NOV. 5TH, 1927.

Notifications.—The following cases of infectious disease were notified during the week :—Small-pox, 219 (last week 199) ; scarlet fever, 2341 ; diphtheria, 1482 ; enteric fever, 89 ; pneumonia, 1098 ; puerperal fever, 39 ; puerperal pyrexia, 94 ; cerebro-spinal fever, 10 ; acute poliomyelitis, 29 ; acute polio-encephalitis, 1 ; encephalitis lethargica, 26 ; continued fever, 1 ; dysentery, 10 ; ophthalmia neonatorum, 91. There was no case of cholera, plague, or typhus fever notified during the week.

Deaths.—In the aggregate of great towns, including London, there was no death from small-pox, 5 (2) from enteric fever, 19 (2) from measles, 8 (2) from scarlet fever, 11 (2) from whooping-cough, 34 (9) from diphtheria, 64 (13) from diarrhœa and enteritis under two years, and 86 (21) from influenza. The figures in parentheses are those for London itself. The number of stillbirths registered during the week was 210 in the great towns, including 32 in London.

SOUTH LONDON HOSPITAL FOR WOMEN.—This hospital, on Clapham Common, is in urgent need of enlargement. Attendances in the out-patients' department average 36,000 annually, and the waiting list never falls below 500. Upon a 2-acre space at the rear of the buildings it is proposed to build a new out-patients' department, to increase the accommodation to 200 beds, and to provide better quarters for the nursing staff. The scheme will cost £180,000, £65,000 of which is required for the out-patients' department, towards which the King's Fund has promised £3250 conditionally upon this part of the undertaking being opened free of debt.

Correspondence.

"Audi alteram partem."

MEDICAL PRIVILEGE.

To the Editor of THE LANCET.

SIR,—Your leading article upon the effects of the McCardie judgment in July last gave weighty expression to the feelings of consternation amongst medical men at the prospect of being compelled to betray the solemn trust of their patients at the order of a judge. Since resumption of Parliament I have had the opportunity of conversation with some leading counsel in the House of Commons, and I have received from them very considerable encouragement for the suggestion that I should ask, under the 10-minutes rule, leave to introduce a Bill securing, as the *minimum* concession, privilege from disclosure for communications made by patients to medical practitioners in pursuance of Article II. (2) of the Public Health (Venereal Diseases) Regulations, 1916. I have obtained leave for a motion, which is now upon the Order Paper for Tuesday, Nov. 22nd, to introduce a Bill, as follows: "Medical Practitioners' Communications Privilege,—Bill to provide that certain communications between medical practitioners and their patients shall be privileged from disclosure in evidence," and I am promised the support of a number of very distinguished lawyers in the House for a Bill securing privilege restricted to the special case of venereal diseases. I should, of course, have preferred unrestricted privilege, and a clause which I had proposed to incorporate in my Bill ran as follows: "Confidential communications passing between a medical practitioner and his patient shall be privileged from disclosure where made for the purpose of obtaining or giving medical assistance in some illness from which the patient is suffering." I am, however, being earnestly dissuaded from attempting this wider purpose by distinguished lawyers in the House who warn me quite frankly that there would probably be general opposition from lawyers to the enlargement of medical privilege to the same degree as the lawyers now enjoy. If your readers can in any way assist, by representations to their Members of Parliament, the acceptance of my motion on Tuesday, the 22nd, the crying scandal of the present position—namely, the conflict between law and regulations in relation to the administration of clinics for venereal diseases might perhaps be removed.—I am, Sir, yours faithfully,

E. GRAHAM LITTLE.

House of Commons, Nov. 14th, 1927.

FINANCIAL HELP FOR DENTAL STUDENTS.

To the Editor of THE LANCET.

SIR,—From time to time, in my capacity as Registrar of the General Medical Council, I am asked whether I know of any fund from which the sons or dependents of medical men can receive financial assistance to enter the medical profession, and my reply has to be that some of the medical schools have scholarships for this purpose, but, apart from this, I do not know of any fund from which they can be assisted.

With regard to dentistry, however, the position is different. Unless the entry of students to the dental profession is increased it is not improbable that in process of time there may be a shortage of dentists to attend to the needs of the public. In suitable cases, therefore, in which the requirements of the General Medical Council for the registration of students have been satisfied, the Board is prepared to give financial assistance, by means of bursaries, to pay the cost of fees and instruments, and in some cases maintenance is given in addition. So far as I know there is scarcely any other great profession for the entrance of which such facilities are provided. As it is possible t medical practitioners may know of cases in wh young men, in every way suitable for entering profession of dentistry, are debarred from so doing lack of means, it is desirable that the assistance offe by the Dental Board should be made known.

Further information will gladly be sent on appl tion to this office. All letters should be addressed the Registrar of the Dental Board.

I am, Sir, yours faithfully,

NORMAN C. KIN

44, Hallam-street, London, W., Nov. 10th, 1927.

THE AUSCULTATORY "SILENT GAP."

To the Editor of THE LANCET.

SIR,—I agree with what Dr. Gibson says in interesting article on the above subject about little attention paid in this country to the wor French observers. But from the context I fai gather that Dr. Gibson, though quoting Barb "La Méthode Auscultatoire," has noticed his expl tion of how the arterial sounds are produced. Tes his explanation with the abundant clinical mat afforded by the Heart Clinic of the Ministry Pensions I have found it very illuminating.

In listening to the sounds Barbier recommends observer to concentrate his attention on the varia in loudness which follow a regular sequence from systolic to below the diastolic levels. The varia in tone have led to the formation by observe zones which are a needless complexity. The varia in tone are hardly ever alike, but the variatio loudness follow the same course in nearly all c The first sound heard as the pressure is released dull thud or hiss which denotes the systolic l This, increasing rapidly in loudness, reaches maximum about 5 mm. lower and then grad becomes fainter, but about 15 mm. lower it wi noticed to be increasing in loudness, but gradually, so that it will be about 30 mm. lower the arterial sound is louder than in any other pa the curve. Then it suddenly becomes quite f thus determining the diastolic level.

Barbier holds that there are two factors at w vibrations in the blood stream and vibrations i arterial wall. The sounds in the first part o curve are mostly blood stream sounds which dim as the lumen of the compressed artery is allow open. The sounds in the second half partake mor rapping than hissing character and are due to vibr of the arterial wall which increases as the press released. The part of the curve where there is sound is where the blood stream sounds are away and the wall sounds are just beginning, an here that the silent gap occurs when both s producing factors are weak.

What has induced me to pin my faith to B in my little work on the subject, where I explai matter more fully, is that he gives various wa testing the correctness of his theory, which I found convincing.—I am, Sir, yours faithfully,

Manchester, Nov. 11th, 1927. FRANCIS HEATHERL

ORGANIC HYPNOTICS.

To the Editor of THE LANCET.

SIR,—We cannot hold you responsible fo opinions expressed by the President of the M Legal Society in his Presidential address on Oct. but, as you publish the address in extenso und heading of Recent Advances in Toxicology Forensic Medicine in your issue of Nov (pp.970–971) we would point out that we, the inve manufacturers, and distributors of the Allonal of Allyl-isopropyl-barbiturate of phenyl-dim dimethylamino-pyrazolon, commonly called A tablets, cannot but regard the inclusion o preparation in the paragraph headed New Dr casting a slur upon, if not actually libellin

duct, ourselves, and also your journal, since you ept and display advertisements in which, according he author of the paragraph named, we make false tements and claims, which "should not be accepted their face value."

or our preparation we would say that: It is the duct of years of patient research by chemists, rmacologists, and toxicologists of hitherto un- bted bona fides and repute; it is manufactured sold as a Roche product, which is accepted ughout the world as a synonym for pharmaceutical parations of the highest class; on entry into this ntry it has to bear its full share of the key industries y; it is advertised and offered only to the medical ession with full disclosure as to its composition and on, and in advertisements and literature regarding o claim nor statement is made which cannot be stantiated and corroborated by the experiences and ions of the most eminent medical men in our own most other countries. Allonal tablets have, during four years they have been on the British market, ed hundreds of enthusiastic users in the medical ession. A member of a partnership of three ors who, in three and three-quarter years, have ght and used 29,000 Allonal tablets in a great strial area of this country, said only yesterday his experience led him to consider the statements ie author of the article under review worse than ir, and that he himself would not willingly be out Allonal, which had enabled him to almost up the use of morphine.

e are therefore quite content to allow Allonal to on its own merits and we make no comparisons een our own preparation and those named in William Willcox's sweeping generalisations and emnations, which are all the more to be deplored they were uttered by one to whom so many for facts and guidance.

We are, Sir, yours faithfully,

E HOFFMANN-LA ROCHE CHEMICAL WORKS, LTD.

Bowes-road, London, N., Nov. 5th, 1927.

To the Editor of THE LANCET.

,—In THE LANCET of Nov. 5th (p. 971), under eading of New Drugs, there is a reference to in remarks made by Sir William Willcox at a t meeting of the Medico-Legal Society. As is a specific reference to Dial, a barbituric acid ative which we handle, we feel that it is incumbent us to submit for your consideration certain ulars relating to this drug.

William Willcox is reported to have stated that g a period of 20 years there were 257 cases of poisoning from the barbituric acid group of . We feel justified in requesting that he will further how many of these fatalities can be ly attributed to therapeutic doses of Dial? In g this request we should like to point out that g a considerable part of the period under review was not even on the market. Moreover, in cally every case where Dial has been mentioned nexion with an overdose of drugs, it has been on investigation that there has been a history er drugs being taken at the same time, resulting, ubt, in a synergistic action. On the other hand, are numerous cases on record in the medical ls where exceptionally large doses of Dial have aken by accident or intent without the produc- f fatal results. We have in our possession the of a case where 100 tablets (150 gr.) of Dial aken and the patient recovered.

le we are in entire agreement with the statement rugs possessing a hypnotic action should be rith care and caution and under medical advice, l justified in taking exception to the suggestion tatements as to their harmless nature (at any s regards Dial) should not be accepted at their alue. Any statements which have been made ertisements regarding the efficacy, safety, and m from toxicity of Dial appearing in THE T can, of course, be substantiated by reference to numerous authorities. Moreover, we feel that such advertisements would not have been inserted in your journal if the statements in them could not have been accepted at their face value.

Regarding the suggestion that such drugs are imported into this country with little restriction as regards duty, whereas similar products of British manufacture are not afforded like facilities, we should like to point out that no drug "similar" to Dial is manufactured in this country. Dial has been exempted from key industry duty for the reason that it is imported for manufacturing purposes, the tablets having been made in this country for many years past. Compounds of Dial and other tablets manufactured in Switzerland are, of course, subject to the full key industry duty of 33⅓ per cent.

We remain, Sir, yours faithfully,

THE CLAYTON ANILINE COMPANY, LIMITED.

40, Southwark-street, London, S.E., Nov. 12th, 1927.

*** Sir William Willcox is reported in THE LANCET of Nov. 5th (p. 971, col. 1) as having said: "It could not be too strongly emphasised that new organic drugs of hypnotic action should be used with great care and caution, and statements as to their harmless nature should not be accepted at their face value." These drugs have been placed on a statutory list of dangerous drugs, and Sir William Willcox is justified in contending that if anyone should state them to be harmless the face value of that statement should be critically examined. We are not aware that either of our correspondents has asserted the nature of their preparations to be "harmless" in opposition to the Home Office view.—ED. L.

CHRONIC EPIDEMIC ENCEPHALITIS:

TREATMENT BY INDUCED MALARIA.

To the Editor of THE LANCET.

SIR,—In connexion with two articles in THE LANCET of Oct. 22nd (pp. 860–862) concerning the treatment of chronic epidemic encephalitis by induced malaria, permit me to draw attention to another form of "fever therapy" which we have tried at the German Hospital. The Saxon Serum Works have supplied us with a preparation called "Saprovitan," consisting of a suspension of living non-pathogenic bacteria. This preparation, injected intravenously in increasing doses, produces a rigor with a temperature from 102°–104° F. within a few hours after the injection. The indications for its use are said to be the same as for fever therapy generally. Opinions differ, however, as to its effciency as a substitute for malaria therapy. We have used it[1] amongst other cases, in a number of patients with chronic epidemic encephalitis (Parkinson's syndrome) allowing 8–10 rigors to occur in each case. In none of these cases did we see any beneficial effect on the symptoms; but we wish to emphasise the debilitating action of this "fever therapy," and, in agreement with P. K. McCowan and L. C. Cook, consider it to be a useless and unjustifiable method.

I am, Sir, yours faithfully,

German Hospital, E., Nov. 11th, 1927. O. B. BODE.

SOME CASES OF ERYTHEMA NODOSUM.

To the Editor of THE LANCET.

SIR,—The contributions by Dr. Maurice Mitman and Dr. Ambrose W. Owen in your issues of Oct. 8th and Nov. 5th illustrate the fact that during the past 12 months there has been an epidemic outbreak of erythema nodosum in various parts of England. I have personally seen 16 cases during 1927, this being the highest number in any 12 months since I began keeping a record in 1907. Five or six cases in the year would be an average with me, but occasionally, at intervals of about four years, as this year and las

[1] O. Bode and J. Axhausen: Erfahrungen mit Saprovitan, Deut. Med. Wochenschr., 1927, liii., 1185.

in 1913 and 1917, the number is doubled or trebled. The maximum number of cases is in the month of April. Erythema nodosum has frequently been noticed to follow upon septic trouble, but I have never noticed its occurrence, as Dr. Owen suggests, at a time when tonsillitis, pulmonary infarcts, pyelitis, or nephritis are unusually prevalent. Possibly erythema nodosum is a special form of streptococcal infection, and the various conditions which he mentions are also of streptococcal origin.

In reply to Dr. Owen's question as to whether the eruption is due to thrombosis or embolism of cutaneous vessels, I may say that I have had several erythematous nodules excised and cut in serial sections; the nodules all show a central thrombosed arteriole lying in the subcutaneous tissue.

I am, Sir, yours faithfully,

Clifton, Nov. 9th, 1927. J. O. SYMES.

MISLEADING QUALIFICATIONS.

To the Editor of THE LANCET.

SIR,—I write again simply to correct the statement made by "F.R.C.S. Edinburgh" that in Scotland the Scottish Fellowship is a compulsory passport to surgical appointments in teaching hospitals. The facts are against him. Classifying the qualifications of the surgical staff of the Glasgow Royal and Western Infirmaries and the Aberdeen and Dundee Royal Infirmaries as given in the Medical Directory of 1925, I obtain the following table:—

—	F.R.C.S. Eng.	F.R.C.S. Edin.	F.R.F.P.S.G.	C.M. or Ch.B. only.	Total.
Glasgow—					
Royal	2	1	9	1	13
Western ..	1	1	3	7	12
Aberdeen ..	2	2	Nil.	5	9
Dundee	2	3	Nil.	5	10
Totals	7	7	12	18	44

It may interest your readers to have the opinion of the General Medical Council on the general question, and with the kind permission of the Registrar I am able to publish his reply to an inquiry of mine.

I am, Sir, yours faithfully,

Nov. 14th, 1927. ETHICS.

*** The letter, which is signed Registrar, G.M.C., Oct. 27th, 1927, runs as follows:—

"In reply to your letter of the 23rd inst., I am directed to say that there appears to be a convention in England that the letters 'F.R.C.S.' represent the Fellowship of the Royal College of Surgeons of England. The letters 'E.' or 'Ed.' and 'I.' are generally added when similar qualifications obtained in Edinburgh and Ireland are used in England. In Scotland, however, and in Ireland, 'F.R.C.S.' alone would probably be taken to refer to the Royal Colleges in Edinburgh, or in Dublin, respectively; while 'F.R.C.S. Eng.' would be used with reference to the Royal College in London. There is certainly no universally accepted rule upon the subject; and there is nothing in Schedule A of the Medical Act, 1859, which would justify the Council in making a formal pronouncement such as you suggest."

RE OVARIAN GRAFTING IN WOMEN.

To the Editor of THE LANCET.

SIR,—I regret that recently an article purporting to be a personal interview with me and containing a highly sensational account of a private lecture given by me to a medical society has appeared in the London press. The facts of the case are these. The wife of one of our members is also a press reporter to several daily papers. She was not known to me by sight, but attended the lecture and sent a report to the lay press. The following morning before I was out of bed or had seen a newspaper I was rung up on the telephone by someone in London whom I took to be the publisher of a certain medical journal asking for an explanation of some points in my lecture. I had just sent him the corrected proofs I answ quite frankly. Later I discovered my error, several reporters called on me. My explanation them only resulted in more "copy," and I refused to see any more. I have also written to London and Counties Medical Protection Society to the various parties concerned.

I am, Sir, yours faithfully,

Manchester, Nov. 14th, 1927. A. C. MAGIA.

HIRSCHSPRUNG'S DISEASE IN ADULT

To the Editor of THE LANCET.

SIR,—I agree with Dr. Hurst that this conditi by no means so rare in adults over 30, as state Dr. Cookson in your issue of Oct. 29th. The follo table, which is taken from my book on "Diseas the Rectum and Colon," shows the ages in collected cases:—

Age.	Cases.	Age.	
Under 5	24	40–50	..
5–10	16	50–60	..
10–20	14	60–70	..
20–30	11	Over 70 ..	..
30–40	7	Not stated ..	..

I am, Sir, yours faithfully,

J. P. LOCKHART-MUMME

Hyde Park-place, W., Nov. 11th, 1927.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Comdr. A. Fairley is placed on the Retd. l his own request.

ROYAL ARMY MEDICAL CORPS.

Capts. W. D. Newland and A. C. Taylor (Prov.) to be Temp. Lt. E. M. Wright relinquishes his commn.

TERRITORIAL ARMY.

Capt. J. F. O'Grady, from General Hospitals, to be Lt. J. J. Mitchell resigns his commn.

ROYAL AIR FORCE.

Flying Officer W. D. McKeown is promoted to th of Flight Lt.

INDIAN MEDICAL SERVICE.

The undermentioned Capts. (prov.) are confirmed i rank: J. S. Riddle, Sukumar Dutta Gupta, D. Fraser, J. C. Drummond, and J. E. Gray.

Temp. Capt. Desraj Kehar resigns his temp. comn retains his rank.

Lt.-Col. W. F. Harvey retires.

DEATHS IN THE SERVICES.

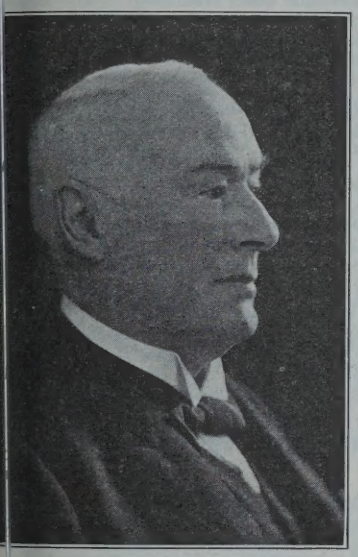
Fleet Surgeon Samuel Keays, R.N., retd., who Nov. 7th at Kingstown, Co. Dublin, qualified in m at the Royal College of Surgeons in Ireland in 18 entered the Royal Navy as a surgeon in 1878. employed on active service in various parts of the and was promoted to staff surgeon in 1890 and surgeon in 1899. After serving in the battleship *Ra* and the *Clyde*, R.N.R. drillship at Aberdeen, he in 1903.

NORTH MIDDLESEX HOSPITAL.—In his report Lieut.-Colonel Spencer Mort, the medical s tendent, points out that a great many of the ma cases sent to this hospital at Edmonton are th which extremely severe complications have come that the number of operations is correspondingly hi the last 50 cases in which he has performed section, the mortality has been nil, with the excep one patient who had cancer of the bowel, which fatal. The hospital is suffering from scarcity of and more room for patients is so urgently require accommodation for the medical staff is "quite unsu

Obituary.

SIR PETER REILLY O'CONNELL, M.D., M.CH. R.U.I., D.L.

Sir Peter O'Connell, who died at Marseilles on pt. 24th whilst on holiday, was for many years a tinguished figure in the public life of Belfast. rn in Co. Cavan, he went to the city as a young n in 1883, after studying medicine in Dublin and ndon and on the continent. His reputation even en had preceded him, and his abilities soon came the fore when with a few colleagues he formed the cleus of the present Mater Infirmorum Hospital. re he laboured hard, both late and early, and when 1900 the present building was opened with 200 beds, was appointed senior surgeon. In this capacity he l ample scope for his talents, and soon his opera- e skill and clinical judgment brought patients from all over Ulster. Though a busy man, he spent much time in reading and writing on other subjects besides those of his profession, and he was interested in societies for the improvement of the people. He became prominent as a speaker, and at the request of many of the citizens entered public life as an Alderman of the City of Belfast. In the corporation he was soon an outstanding figure, taking a keen interest in public



SIR PETER O'CONNELL.

th, technical and educational committees. His of oratory and sound argument gained him gh place in the esteem of his fellow-citizens, in 1909 he was elected High Sheriff of the by men who differed from him both in religion politics, but recognised his great ability. As a rd for his services he was created a Knight elor in 1908; he also became Deputy Lieutenant he City. He was appointed on a commission to ire into University education in Ireland, which ted in the establishment of the National and n's University, and of the latter University he appointed a senator, acting also as lecturer and iner in surgery. Although devoting much of nergies to public affairs he always found time to d the medical meetings and to contribute to their sactions, and for the year 1910–11 he served as dent of the Ulster Medical Society. Sir Peter nnell retired about six years ago, and went to in the suburbs of Dublin. During his frequent s to Belfast he was always welcomed by his former iates, and in the places where he had once been inent.

colleague, to whom we are indebted for these aphical details, writes: "In the Mater, where ad laboured for nearly 40 years, we shall miss enial presence, his candid advice, his sallies of his professional skill; but his name and fame it large in its history, and future generations will the deep debt they owe to 'Sir Peter.'"

dy O'Connell, who survives him, is the daughter e late Mr. Edward Hughes, J.P.

JOHN SINGLETON DARLING, M.D., M.CH. DUB.

DEEP regret is felt in Ulster at the death of Dr. J. Singleton Darling which occurred on Nov. 8th, at the age of 71, after a long illness. Dr. Darling received his medical education at Trinity College, Dublin, where he graduated in the year 1879. He afterwards studied in Vienna, having gained the medical travelling prize at Trinity College. He settled in Lurgan and soon acquired a large practice. He was appointed medical officer of the Lurgan Workhouse Infirmary and effected many improvements in that institution, which is now one of the best appointed and successful hospitals in Northern Ireland. Dr. Darling filled many important positions. He was at one time president of the Ulster Medical Society and of the Ulster branch of the British Medical Association. He took an active interest in the affairs of the Association, and at various times acted as a member of its Council. He was a regular attender at the quarterly meetings of the Ulster branch, and made many valuable contributions to its proceedings. Dr. Darling enjoyed in a high degree the respect and affection of his medical brethren. A man of considerable professional attainments, scrupulous honour, genial and fraternal character, he occupied a distinguished place in the ranks of the profession. He leaves a widow and a large family.

Medical News.

UNIVERSITY OF CAMBRIDGE.—At a congregation held on Nov. 12th the following degrees were conferred:—

M.B. & B.Chir.—J. L. Warner.
M.B.—W. H. Craib.

UNIVERSITY OF GLASGOW.—On Nov. 12th the degrees of M.B. and Ch.B. were conferred on Eric Dow, and the degree of B.Sc. on Martha Cleland, M.B.

UNIVERSITY OF MANCHESTER.—Dr. Reginald Ellis has been appointed assistant lecturer in applied physiology, and Dr. Marguerite F. Johnstone has been elected to the John Henry Agnew Fellowship in the Diseases of Children.

UNIVERSITY OF BIRMINGHAM.—On Nov. 11th the following prize medals were distributed:—

Arthur Foxwell Memorial Medal (awarded for Clinical Medicine in the Final M.B. Examination): Marjorie V. Martin.—Sampson Gamgee Memorial Medal in Surgery (awarded at Final M.B. Examination): Kenneth P. Fooks.—Senior Medical Prize: Frances M. Stockdale.—Senior Surgical Prize: Victor Goldman.—Midwifery Prize: Robert Anderson. Junior Medical Prize: John W. Notley.—Junior Surgical Prize: Beatrice M. Willmott.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—At a meeting of the Council, held on Nov. 10th, Sir Berkeley Moynihan, the President, in the chair, the following resolution was adopted and entered on the Minutes:—

"On the occasion of the retirement of Mr. Frederic G. Hallett from the offices of Secretary to the Conjoint Examining Board and Director of Examinations in the Royal College of Surgeons, the Council desire to place on record their high appreciation of his services and the very warm regard which they entertain for him personally. Mr. Hallett's powers of organisation, his long experience in all matters relating to examinations, and his exceptional knowledge of regulations for medical education in this and other countries have been of great advantage to the College, and have given his services a special value and caused them to be held in the highest regard. The Council are fully conscious of the ability and zeal with which Mr. Hallett has carried out his duties during the long period of 50 years, and they trust that health and happiness may enable him to enjoy in his retirement the rest which he has earned so well. His unfailing courtesy and readiness to help will not be forgotten by those who have had the pleasure of being associated with him in the control and management of the affairs of the College, and the Council assure him that he carries with him their best wishes for his welfare in years to come."

With reference to the resolution carried at the annual meeting of Fellows and Members in November, 1926, the following resolution was unanimously adopted:—

"That, in view of the result of the recent postal vote of the Fellows, the Council is not prepared to take steps at the present time for altering the constitution of the College so as to give Members of the College direct representation on the Council."

THE Minister of Health and the Minister of Agriculture and Fisheries have appointed a Joint Advisory Committee, with Sir Horace Monro as chairman, to consider, and from time to time to report on, the pollution of rivers and streams, and on any measures which they think desirable for its diminution. The only medical member of the committee is Dr. H. Maclean Wilson. Communications should be addressed to Mr. G. C. North at the Ministry of Health.

A CONGRESS ON LIGHT AND HEAT IN MEDICINE.—The first International Exhibition and Conference on Light and Heat in Medicine and Surgery will be held at the Central Hall, Westminster, from Dec. 13th to 16th inclusive. The exhibition will be opened at 2.30 P.M. on Dec. 13th by Sir Alfred Mond. The arrangements are in the hands of the *British Journal of Actinotherapy* (17, Featherstone Buildings, London, W.C. 1), and medical men or others professionally interested, who wish to contribute papers or receive invitations, are asked to communicate their names.

BRITISH SERBIAN UNITS.—The annual re-union dinner of the British Serbian Units Branch of the British Legion, and of all friends of Serbia, will be held on Saturday, Dec. 3rd, at 7.15, at the Victoria Mansions Restaurant, 24, Victoria-street, Westminster. The President, the Rev. R. G. D. Laffan, will take the chair. Tickets may be had from Miss Marx, 24, Melcombe-court, Dorset-square, London, N.W. 1.

BRADFORD INFIRMARY.—Work has now begun upon the great new infirmary which is to contain 435 beds and to cost half a million. The block upon which the builders are engaged is to be a self-contained unit reserved for paying patients.

HOSPITAL ACCOMMODATION FOR JEWS.—Last week the Marquis of Reading opened new wards in the Jewish Maternity Home in Underwood-street, Whitechapel. The Hebrew community of Liverpool is laying plans for the provision of a Jewish ward in one of the city hospitals. It is complained that at present Jewish hospital patients are unable to obtain orthodox food, and that the unaccustomed diet "often has an adverse effect upon them."

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.—At the annual meeting of the Faculty on Nov. 7th the following office-bearers were elected for the ensuing year: President, Dr. G. H. Edington; visitor, Dr. John F. Fergus; hon. treasurer, Mr. J. H. MacDonald; hon. librarian, Dr. E. H. L. Oliphant; representative on the General Medical Council, Dr. James A. Adams. Council: The President; visitor, treasurer, librarian, and representative on the General Medical Council, ex officio; Dr. John Henderson, Dr. H. L. G. Leask, Mr. R. Barclay Ness, Dr. T. K. Monro, Dr. W. G. Dun, Mr. J. Forbes Webster, Dr. J. M. Munro Kerr, Mr. Thomas Kay, Mr. John Patrick, and Mr. R. M. Buchanan. Dr. G. H. Edington, the new President, was invested with a badge of office, presented by his predecessor, Dr. R. M. Buchanan. The following candidate was admitted (after examination) as a Fellow of Faculty, Sheik Abdool Majid Sepher.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—Mr. Arthur Edmunds will deliver a lecture on Practical Surgical Details on Monday, Nov. 21st, at 5 P.M., at the rooms of the Medical Society of London, 11, Chandos-street, Cavendish-square, W. On Wednesday, Nov. 23rd, at 2.30 P.M., a special demonstration will be given at the Prince of Wales's General Hospital, Tottenham, N. On Thursday, Nov. 24th, at 2 P.M., Mr. Whitchurch Howell will give a surgical demonstration at the Queen's Hospital for Children, and on the same day, at 1 P.M., Mr. Whiting will demonstrate at the Royal London Ophthalmic Hospital, City-road, E.C. Members of the medical profession are invited to attend the lecture and demonstrations without fee. From Nov. 21st to Dec. 17th, at 5 P.M., at the West End Hospital for Nervous Diseases, a series of lecture-demonstrations will be given, illustrated by cases. A post-graduate course on Diseases of the Rectum will be held at the St. Mark's Hospital from Nov. 28th to Dec. 3rd. From Dec. 5th to 17th, at the Infants Hospital, an afternoon course on infants' diseases will be given under the direction of Dr. Eric Pritchard, and an afternoon course at the Hospital for Diseases of the Skin, Blackfriars, will be held between the same dates. During January courses will be given in medicine, surgery, and the specialties at the Prince of Wales's General Hospital and associated hospitals, in cardiology at the National Hospital for Diseases of the Heart, in diseases of children at the Children's Clinic, and in psychological medicine at the Bethlem Royal Hospital. Information, syllabuses, and tickets may be had from the Secretary of the Fellowship, at 1, Wimpole-street, London, W. 1.

UNIVERSITY OF SHEFFIELD.—Dr. Percival H has been appointed honorary lecturer in ophthalmolo and Mr. J. L. Grout, F.R.C.S. Edin., honorary lecturer radiology.

JERVIS-STREET HOSPITAL, DUBLIN.—A new wi with a laboratory and an X ray department, is being ad to this institution at a cost of £50,000. The new buildi are nearly completed.

BIRMINGHAM STUDENTS' CARNIVAL.—This ye carnival for the benefit of the Birmingham hospitals produced approximately £5500, the largest amount obtained.

CREMATIONS IN MANCHESTER.—The Manches Crematorium, Limited, state that the total number cremations since 1892 is 4974, the numbers for each of last five years being as follow: 1923, 222; 1924, 2 1925, 265; 1926, 297; and 1927, 352.

NEW CASUALTY DEPARTMENT AT WALSALL.—T number of casualties received at this hospital, made fam by Sister Dora, has so greatly increased that a new dep ment is to be provided for their treatment. The secret of the hospital recently pointed out to 20 insurance c panies the extent of the benefits they derive from this in tution, but received only one acknowledgment, wit donation of £1.

ROYAL NATIONAL ORTHOPÆDIC HOSPITAL.—T new out-patient department of this hospital at 234, G Portland-street, London, W., will be opened by the L Mayor on Tuesday, Nov. 22nd, at 12.15 P.M. The build which costs £58,500, contains departments for mass electrical treatment, exercises, light treatment, X ray w and surgical instrument and bootmaking workshops, will be open for inspection between 11 and 12 o'clock be the opening ceremony.

ROYAL EAST SUSSEX HOSPITAL.—A new childr ward is to be built on the foundations of the nurses' h which were laid before the war. The extension will inv the building of a corridor, 100 feet in length, from the n building, and this corridor, which will be fitted with sli windows of vitaglass, is to accommodate ten beds. new ward is being given by Mrs. Whitefoord in men of her son, and will hold 20 patients. When the enla ment is complete the hospital will have 154 beds ins of the present 114.

FREE TREATMENT FOR HOSPITAL SUBSCRIBERS The Manchester and Salford Hospital Saturday and Convalescent Homes Fund has approved of a scheme for secu free treatment in the hospitals of Manchester and Sal to all subscribers to the fund who consent to increase t subscriptions by 1*d.* to 2*d.* a week. Although the f contributes £12,000 a year to the local medical chari nothing is received in return, whereas in Birmingham Leeds, where similar schemes are in operation, the co butors obtain free treatment. It is believed that by adoption of the proposed plan an additional £20,000 a would be received, 85 per cent. of which would go to hospitals and the remainder to the convalescent homes.

PRESENTATIONS TO MEDICAL MEN.—A prese tion of his portrait to Prof. R. B. Wild was made Nov. 10th by Prof. G. R. Murray on behalf of Prof. W past and present colleagues in the Faculty of Medicin the University of Manchester and in recognition of valuable services to medicine and education. Prof. expressed a desire to offer the portrait to the Univer on whose behalf it was gratefully accepted by the Chancellor. Prof. Wild retired last September from Leech Chair of Materia Medica and Therapeutics, whic had held for a quarter of a century.—Dr. C. F. W who for several years has been assistant port me officer at Liverpool, and is about to leave the city to up an appointment as a medical officer at the Minis of Health, was on Oct. 27th presented by the staff of department with a handsome chiming clock and a Dr. A. A. Mussen, who presided, paid a warm tribute t efficiency which Dr. White had brought to bear on work, and said they all regretted his departure.

THE LANCET: SUBSCRIPTION RATES.

INLAND	One Year	£2 2 0
	Six Months	1 1 0
	Three Months	0 10 6
ABROAD	One Year	2 10 0
	Six Months	1 5 0
	Three Months	0 12 6

Parliamentary Intelligence.

HOUSE OF COMMONS.

THURSDAY, NOV. 10TH.

Tuberculous Ex-Service Men and Treatment Allowances.

Mr. ROBINSON asked the Minister of Pensions whether it is now the practice to refuse treatment allowances to men suffering from tuberculosis and unable to work who are under treatment by their panel doctor, and what was the estimated saving that might result from the withdrawal of treatment allowances in these cases.

Mr. DENNISON asked the Minister of Pensions if his attention had been drawn to the concern among disabled men suffering from pulmonary tuberculosis at the reduction of pensions and the withdrawal of treatment allowances, and whether an instruction had been issued to the medical officers that men in receipt of 100 per cent. pension in respect of tuberculosis were to be taken off treatment allowances and put on their flat-rate pension.—Major TRYON replied: No general instruction has been issued that men suffering from tuberculosis in consequence of their war service are to have their treatment allowances withdrawn. I understand, I find that some 1600 cases were admitted to such treatment allowances in consequence of treatment during the quarter ended in September last. The provisions of the Royal Warrant make it a condition of the grant of these allowances that the patient is rendered unable to provide for himself by the consequence of the treatment which is ordered for him. It is therefore the necessary duty of my department to review from time to time all cases in which allowances are being paid in order to see that the Warrant conditions are fulfilled. The terms of the Warrant apply to tuberculosis as well as to all other disabilities, but in the case of tuberculosis the circumstances of each individual patient are considered in consultation with the responsible medical officer of the local authority. So far from there being any attempt to reduce pensions in these cases, special arrangements have been made to ensure that any man whose treatment allowances are discontinued under the terms of the Warrant is examined in regard to his rate of assessment of pension purposes and any increase appropriate to his case is granted. These arrangements have in fact resulted in a substantial increase in the average rate of pension for tuberculosis disability.

Pensioners and Poor-law Medical Attention.

Mr. GROVES asked the Minister of Pensions: (1) Whether he had given personal consideration to and sanction of the present practice of the Pensions Issue Office in deducting from a pensioner's allowance an amount said to be claimed by the West Ham Board of Guardians whenever a pensioner was sent into the Whipps Cross Hospital, which was within the West Ham Poor-law Union; and (2) whether his department made any inquiries as to the reasonableness of the demand upon a pensioner's allowance, when such pensioner had entered an institution under a Poor-law authority, for any medical advice or attention.—Major TRYON replied: Under the provisions of the Royal Pension Warrants a claim made by a board of guardians in respect of a pensioner admitted to a Poor-law institution for maintenance or medical treatment not connected with his war service is met by repayment to the guardians out of the man's pension. The amount so collected may not exceed the ordinary rate for the maintenance of inmates or the daily rate of pension in payment, whichever is the less. The provision referred to is not a new one, but has been in operation for many years and applies to all Poor-law institutions.

Dental Clinics.

Colonel APPLIN asked the Minister of Health whether attention has been drawn to the establishment of dental clinics by various approved societies; and what steps he proposed to take in this matter.—Mr. CHAMBERLAIN replied: Approved societies have no power under the National Health Insurance Act to establish dental clinics, but a few clinics have been established by bodies indirectly associated with approved societies. I have referred the general question of the provision of dental treatment in clinics to a Medical Committee representative of approved societies and dentists, and I am hoping very shortly to receive a report on the subject.

Poor-law Relief.

Mr. LANSBURY asked the Minister of Health the number of able-bodied persons, together with their dependents, in receipt of Poor-law relief, institutional and outdoor, during each of the 12 months ending Oct. 31st, 1927.—Mr. CHAMBERLAIN replied: The following is the information asked for:—Figures based on a classification distinguishing "able-bodied" persons are not now obtained. The available information is set out below.

1. Number of persons (not being persons suffering from sickness, accident, or bodily or mental infirmity and not being casuals) in receipt of institutional Poor-law relief in England and Wales.

	Men.	Women.	Children.	Total.
Jan. 1st, 1926	37,493	18,366	42,699	98,558
„ 1927	40,343	18,702	42,206	101,251

Corresponding particulars for each month are not available.

2. Average number, for each of the undermentioned months, of the persons in receipt of outdoor Poor-law relief in money or kind in England and Wales who were classified, in returns made by the guardians to the Minister of Health, as "persons ordinarily engaged in some regular occupation and dependent wives and children of those persons."

Month.	Men.	Women.	Children.	Total.
November, 1926 ..	389,513	368,188	732,166	1,489,867
December, 1926 ..	284,292	259,950	523,561	1,067,803
January, 1927 ..	177,054	153,800	316,470	647,324
February, „ ..	159,451	137,201	283,489	580,141
March, „ ..	150,644	129,255	265,786	545,685
April, „ ..	141,311	121,874	251,204	514,389
May, „ ..	134,576	115,909	238,397	488,882
June, „ ..	133,460	114,726	236,568	484,754
July, „ ..	129,878	111,952	230,666	472,496
August, „ ..	130,376	112,810	233,802	476,988
September, „ ..	127,825	110,404	227,756	465,985

October, 1927: Information not yet available.

Average Cost for Medicine for Insured Persons.

Mr. HARDIE asked the Minister of Health the average cost per person per form for medicine for insured persons in Glasgow, London, and any other large cities.—Mr. CHAMBERLAIN replied: I am not clear as to the precise information desired by the hon. Member, but I may say that the average cost per prescription during August last, the latest month for which figures are available, was as follows: London, 8·1*d.*; Birmingham, 7·8*d.*; Manchester, 8·9*d.*; Liverpool, 8·5*d.* As regards Glasgow I suggest that the hon. Member should address a question to the Secretary of State for Scotland. (This figure was given later as 13·41*d.*).

Position of Voluntary Hospitals.

Mr. THOMAS WILLIAMS asked the Minister of Health whether he was able to make any statement indicating what steps he was likely to take with regard to the Onslow Report on Voluntary Hospitals.—Mr. CHAMBERLAIN replied: I have already indicated that, in the present financial position, I cannot recommend any grant from public funds towards the cost of extensions of voluntary hospitals, but I am glad to be able to say that, since the report of the Commission was received, the position has improved and a considerable number of new beds have been provided or are in course of provision.

Birth Control and Decline in the Birth-rate.

Sir NICHOLAS GRATTAN DOYLE asked the Minister of Health whether his attention had been called to the decrease in the national birth-rate, and if he had considered the desirability of curtailing the activities of certain birth-control societies and other agencies.—Mr. CHAMBERLAIN replied: The answer to the first part of the question is in the affirmative. As regards the second part I have no control over the activities of these agencies.

Foreign Condensed Skimmed Milk.

Sir ROBERT SANDERS asked the Minister of Health whether inquiries had been made on behalf of his department as to the conditions of manufacture of condensed skimmed milk imported from Holland and Denmark; by whom the inquiries were made; and whether he would lay the report on the table of the House.—Mr. CHAMBERLAIN replied: My information is that the sale of condensed skimmed milk is not forbidden in Holland. Inquiries as to the conditions of production in Holland and Denmark have recently been made by Dr. J. M. Hamill, one of my medical officers, Mr. T. A. Hole, a milk inspector in my department, and Mr. James Mackintosh, Professor of Dairy Husbandry at the University of Reading. I am considering in what form I can best submit for the information of hon. Members the results of their investigation, including the scope of the regulations in force.

Luneside Sanatorium, Lancaster.

Mr. BROMLEY asked the Minister of Health how many of the inmates of the Luneside Sanatorium, Lancaster, lost their lives as a result of the recent flooding of that institution; if he had made any inquiries into the lack of precautions which allowed such an occurrence; and if any measures would be taken to make such an event impossible in future.—Mr. CHAMBERLAIN replied: I regret to say that three patients lost their lives as a result of the recent flooding of this institution. According to the press reports of the inquest the flooding was of an unprecedented character, and there was no suggestion that all reasonable precautions had not been taken. I am in communication with the Lancashire County Council on the question of the future use of this institution for tuberculous patients.

Dismissal of a Medical Officer.

Mr. WILLIAM THORNE asked the Minister of Health if it was his intention to hold an inquiry into the circumstances of the dismissal of the general medical officer of the women's section of the Park Prewitt mental institution, Basingstoke, which resulted in the wholesale resignation of the staff.—Mr. CHAMBERLAIN replied: The answer is in the negative. The dismissal of the medical officer in question is primarily a matter for the local authority by whom he was employed. As regards the alleged wholesale resignation of the female staff I am informed that out of a total staff of 138 only 32 resigned, and that on the 1st of this month the female nursing staff was only six below the normal strength.

Medical Tests for Driving Licences.

Sir HARRY BRITTAIN asked the Minister of Transport whether and when it was intended to introduce medical and other tests before granting driving licences.—Colonel W. ASHLEY replied: My proposals with regard to the conditions with which applicants for driving licences should comply are contained in Clauses 14 and 15 of the Draft Road Traffic Bill which I caused to be published and circulated some time ago.

Sale of Tuberculous Fish.

Sir WALTER DE FRECE asked the President of the Board of Trade if his attention had been drawn to the sale of tuberculous fish, and if he would have investigations made with a view to prohibiting such sales.—Mr. CHAMBERLAIN replied: No, Sir. I am advised that there is no danger of the communication of tuberculosis to man from the consumption of fish.

MONDAY, NOV. 14TH.

Proposed Medical Mission to China.

Mr. THURTLE asked the Under Secretary of State for India the reason for the refusal of the Government of India to allow the proposed medical mission of a non-political character to be sent to China.—Earl WINTERTON replied: The reasons for which facilities for the proposed medical mission to China were refused were, firstly, that the grant of facilities for a party of British subjects to serve even as non-combatants with one or other of the contesting factions in the civil war in China would have been likely to be construed as a departure by His Majesty's Government from their attitude of strict impartiality; and, secondly, that at a time when His Majesty's Government had caused all British subjects to be advised to withdraw from the interior of China, in order to avoid embarrassing incidents, it was impossible to allow a considerable party of British subjects to proceed to those parts of China where such incidents would have been most likely to occur.

India Office and "Mother India."

Mr. RENNIE SMITH asked the Under Secretary of State for India whether, in view of the feeling aroused in India by the publication in this country of Miss Katherine Mayo's book, "Mother India," he could say whether Miss Mayo was assisted in the production of this book by the India Office or the Government of India.—Earl WINTERTON replied: Miss MAYO received no assistance in the production of her book, either from the India Office or from the Government of India, beyond the supply of official information on matters of fact which is afforded to any member of the public who asks for it.

Sale of Opium in Rangoon.

Mr. KELLY asked the Under Secretary of State for India whether he was aware that at the monthly meeting of the Rangoon corporation in September resolutions were passed to the effect that in their opinion the reopening of opium registers for Burma consumers was not desirable and not in the public interest, and urging His Majesty's Government to veto the proposal to legalise the sale of opium in Rangoon; and what steps the Government proposed to take in the matter.—Earl WINTERTON replied: I have seen a press report of the resolutions referred to. The Governmen Burma had already decided not to reopen the opium regis for Burman consumers without a clear mandate from th affected. The other resolution referred not to opium to ganga. As regards the last part of the question I wo remind the hon. Member that excise is a transferred subj

Death and Invaliding Rate in Gold Coast Mines.

Mr. HAYES asked the Under Secretary of State for Colonies the death and invaliding rate in the Gold C gold mines.—Mr. ORMSBY GORE (Under Secretary for Colonies) replied: The total number of workers emplo in the gold mines in the Gold Coast during the year A 1926, to March, 1927, was 8240, and the deaths during period were 98, of which 14 were due to accidents and 8 diseases. The death-rate was therefore approximately per 1000. No figures are available as to the invalid rate.

Government and the Licensing Laws.

Sir FRANK MEYER asked the Prime Minister wheth was his intention to set up a commission or committe inquire into the working of the present Licensing Iw for the regulation of the consumption of alcoholic liq and whether he was aware of the dissatisfaction with present laws.—Mr. BALDWIN replied: I am aware there are many points in the existing licensing laws w may be said to dissatisfy different sets of opinions, and whole question is under the consideration of the Gov ment who are not prepared to make a statement at pre

Consumption of Milk in London.

Mr. HURD asked the Minister of Agriculture if he c give an estimate of the increased consumption of li milk in London in gallons and percentages in the past years, allowance being made for any increase in the po tion; and what educational and other means were taken to increase this consumption in the interests of p health and agriculture.—Mr. GUINNESS replied: In half-yearly report of the National Milk Publicity Co the following figures are given, compiled from statis rendered by the four principal railway companies for brought into London by rail:—

Year ending June 30th.	No. of gallons, in millions.	Percen increase since 2
1923	72	—
1924	77	7
1925	99	37
1926	107	48
1927	117	62

It is further estimated that at least 5,000,000 gallon annum are brought into London by road. The av increase in the population of Greater London over period has been less than 50,000 per annum, that is than 1 per cent. The question of educational and steps to increase the consumption of milk is dealt wi some length in a report on the Fluid Milk Market, wh to be issued in a few days as No. 16 of the Economic S Briefly, it may be said that up to the present such a has been limited to the steps taken by the National Pub Council which is maintained by voluntary contribu from farmers, manufacturers, and distributors.

Small-pox Statistics.

Dr. VERNON DAVIES asked the Minister of Health fo small-pox statistics for England and Wales for the m of August, September, and October last, and the number of cases since Jan. 1st, 1927.—Sir KINGSLEY replied: The numbers of cases of small-pox notified i months of August, September, and October were 564 and 795 respectively, and the total number of notifica during the period from Jan. 2nd last to Nov. 5th incl was 12,729. These figures are subject to revision.

Whipps Cross Hospital: Cost of Patients and Char Patients.

Mr. GROVES asked the Minister of Health the av cost of maintenance of the patients at the Whipps Hospital of the West Ham Union.—Sir KINGSLEY replied: In the returns made to my right hon. fr department the expenditure in respect of the Whipps Hospital is not shown separately from that in resp the Forest House and Forest House Cottages of the Ham Union. The average weekly expenditure per i of this group of institutions for the year ended March 1927, was 45*s.* 10½*d.*

Mr. GROVES also asked the Minister of Health wh he was aware that, owing to the pressure upon the ord voluntary hospitals of the East End of London and

riction of accommodation, there had been an increase the number of patients sent by medical men to the ipps Cross Hospital; that these persons generally were king people who would not like normally to seek parish) and that if they had been received into the ordinary pital they would have been asked what they could rd to subscribe; that the West Ham guardians made a ailed and heavy charge upon the whole of the members he family of the inmate; and whether he would con- r making such changes in medical treatment charges in 1 institutions that sick persons were only asked to sub- be similar sums to those charged by the local voluntary pitals.—Sir KINGSLEY WOOD replied: It is the duty of oard of guardians to take all reasonable steps for the very of the cost of any relief which they may afford ick or other persons, and they could not lawfully adopt stem of small fixed charges or limit their purview in ding upon such cases in the manner which the question ests is adopted by the authorities of voluntary hospitals.

Approved Societies and Convicted Persons.

r. THOMAS WILLIAMS asked the Minister of Health if vas aware that certain approved societies employed a to dismember an insured person on that person being icted and punished for an offence; and what steps he ided to take to discourage the application of any such by which an approved society sought to supplement punishment of a bench of magistrates.—Sir KINGSLEY ID replied: The rules of most approved societies provide the committee of management may expel a member has been imprisoned for any crime. Before a member be expelled under this rule, however, the committee is ired to give him a full opportunity of submitting his nce, and if a decision to expel him is arrived at he has ht of appeal, first to an independent arbitration tribunal, finally to the Minister. My right hon. friend thinks, efore, that insured persons are already sufficiently ected against a harsh or unreasonable application of rule.

Drowning Fatality in a London Hospital.

r. DAY asked the Minister of Health whether his atten- had been drawn to the remarks of the coroner at an est held at Hammersmith regarding the death of a an who was found dead through drowning in a bath f water at a hospital, and who had taken a bath against uctions; and whether any precautions had been taken is department to instruct the hospital authorities under ontrol to carry out the coroner's suggestions to have aps in bathrooms controlled to prevent such further bilities.—Mr. CHAMBERLAIN replied: I am aware of acts of this case. The importance of having keys to t water taps in the bathrooms of Poor-law institutions r many years been emphasised by the central authority, I am informed that such keys have now been fitted to e bath taps at this institution.

TUESDAY, NOV. 15TH.

Consumption of Milk in Great Britain.

R. ROBERT MORRISON asked the President of the Board ade the consumption of milk per head of the population reat Britain and Northern Ireland in the years 1924, and 1926, respectively.—Mr. GUINNESS replied: the results are available of the last census of agricul- production in Scotland and Northern Ireland, it is possible to make very approximate estimates of mption of milk in the United Kingdom. It has been lated, however, that the per head consumption of liquid in the United Kingdom during each of the years ied in the question was about 20 gallons. During the periods the amount of tinned milk consumed was alent to rather over two gallons of liquid milk per head.

Village Settlements for Tuberculosis Treatment.

MR. HORE-BELISHA asked the Minister of Health whether tention had been called to the resolution passed by Plymouth insurance committee, requesting that the rnment be urged to make provision enabling and ring local authorities dealing with the treatment of culosis, or groups of these, to formulate schemes for e settlements where suitable ex-sanatorium patients their families might be housed and appropriate nerative employment provided under medical super- on the lines adopted at the Cambridgeshire tuber- s colony at Papworth Hall; and what was the policy department with regard to this matter.—Sir KINGSLEY replied: The answer to the first part of the question the affirmative. As regards the second part of the on, there are three village settlements in existence fourth is under consideration. My right hon. friend's is that fuller experience of the results in these cases be awaited before attempting such widespread and developments as are suggested in the question.

Medical Adviser to Mines Department.

Mr. LUNN asked the Secretary for Mines if he could now give the name of the new medical adviser to the Mines Department and his qualifications to enable him to deal with the various diseases peculiar to the mining industry.—Colonel LANE FOX replied: Dr. S. W. Fisher has been appointed Medical Inspector of Mines and Quarries. Since his demobilisation in 1919 Dr. Fisher has practised in a colliery district in South Wales, where he has obtained general experience of mining conditions and of the treatment of cases of mining accidents and disease. He has taken special interest in silicosis and nystagmus, in which he has carried out research work, and in beat-hand, beat-knee, and beat-elbow.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

TUESDAY, Nov. 22nd.—5 P.M., MEDICINE. Clinical meeting in the Library of St. Bartholomew's Hospital Medical College.

WEDNESDAY.—5 P.M., COMPARATIVE MEDICINE. Paper: Dr. Edgar Obermer: The Endocrinology of Tuberculosis. 5.30 P.M., BALNEOLOGY. Presidential Address: Dr. L. C. E. Calthrop: The Scientific Basis of the Practice of Medical Hydrology. A polychromide film of the solar eclipse, 1927, will be shown after the Presidential Address.

THURSDAY.—8.30 P.M., DISEASE IN CHILDREN, THERAPEUTICS, UROLOGY. Special discussion on the Treatment of Pyuria in Children. Openers: Dr. E. A. Cockayne (Study of Disease in Children), Dr. E. H. Lepper (Therapeutics), and Mr. John Everidge (Urology).

FRIDAY.—5 P.M., DISEASE IN CHILDREN. (Cases at 4.30 P.M.) 8 P.M., EPIDEMIOLOGY. Paper: Dr. E. H. R. Harries: Immunity in the Making.

MEDICO-LEGAL SOCIETY, at 11, Chandos-street, Cavendish-square, W.

THURSDAY, Nov. 24th.—8.30 P.M., Paper: Captain Norman Parkes: A Case of Pathological Drunkenness as a Defence of Insanity at a Murder Trial.

MEDICAL SOCIETY FOR THE STUDY OF VENEREAL DISEASES, 11, Chandos-street, Cavendish-square, W.

FRIDAY, Nov. 25th.—8.30 P.M., Papers will be read by Dr. P. H. Manson-Bahr and Dr. H. S. Stannus on Yaws. A discussion will follow.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, Nov. 21st, to SATURDAY, Nov. 26th.—FELLOWSHIP OF MEDICINE. Special lecture at the Medical Society, 11, Chandos-street, Cavendish-square, W., on Mon., at 5 P.M., by Mr. A. Edmunds: Practical Surgical Details.—PRINCE OF WALES'S GENERAL HOSPITAL, Tottenham, N. Wed., 2.30 P.M., Special demonstration by Dr. Browning Alexander.—QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, E. Thurs., 2 P.M., Special demonstration by Mr. Whitchurch Howell.—ROYAL LONDON OPHTHALMIC HOSPITAL, City-road, E.C., Thurs., 1 P.M., Special clinical demonstration by Mr. Whiting. The above lectures are free.—ROYAL WATERLOO HOSPITAL, Waterloo-road, S.E. Post graduate course in Medicine, Surgery, and Gynæcology, second week.—ST. PETER'S HOSPITAL, Henrietta-street, W.C. Special course in Urology.—WEST END HOSPITAL FOR NERVOUS DISEASES, Welbeck-street, W. Lecture-demonstrations illustrated by cases, daily, at 5 P.M., for four weeks. Further information from the Secretary.

CHARING CROSS HOSPITAL.

THURSDAY, Nov. 24th.—3 P.M., Sir Archibald Garrod: Recent Advances in Science in Relation to Medicine and Surgery (Huxley Lecture).

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION, St. James's Hospital, Ouseley-road, Balham.

WEDNESDAY, Nov. 23rd.—4 P.M., Dr. C. E. Lakin: Clinical Demonstration of Medical Cases.

WEST LONDON HOSPITAL POST-GRADUATE COLLEGE, Hammersmith-road, W.

MONDAY, Nov. 21st.—10 A.M., Dr. Dowling: Skin Department. 2 P.M., Mr. Donald Armour: Operations. 2 P.M., Dr. Trevor Davies: Gynæcological Out-patients.

TUESDAY.—11 A.M., Mr. Endean: Venereal Diseases. 2 P.M., Mr. Addison: Operations. 4.30 P.M., Dr. Scott Pinchin: Cardiac Irregularities (lecture).

WEDNESDAY.—10 A.M., Dr. Owen: Children's Department. 10 A.M., Dr. Burnford: Medical Wards. 2 P.M., Mr. Tyrrell Gray: Operations.

THURSDAY.—11 A.M., Resident Assistant Surgeon: Ward Demonstrations. 3 P.M., Sir Henry Simson: Gynæcological Ward Visit. 4.30 P.M., Mr. Tyrrell Gray: Gastric and Duodenal Ulcer (lecture).

FRIDAY.—11 A.M., Dr. Pritchard: Modern Methods in Medicine. 2 P.M., Dr. Shaw: Medical Out-patients. 2 P.M., Mr. Vlasto: Throat, Nose, and Ear Department.

SATURDAY.—9.30 A.M., Dr. Burnford: Bacterial Therapy Department. 10 A.M., Dr. Owen: Medical Diseases of Children.

Daily, 10 A.M. to 5 P.M., Saturdays, 10 A.M. to 1 P.M., In- and Out-patients, Operations, Special Departments.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY, Nov. 21st.—2.30 P.M. to 5 P.M., Medical, Surgical, and Gynæcological Clinics. Operations.

TUESDAY.—2.30 P.M. to 5 P.M., Medical, Surgical, Throat, Nose, and Ear Clinics. Operations.

WEDNESDAY.—2.30 P.M. to 5 P.M., Medical, Skin, and Eye Clinics. Operations.

THURSDAY.—11.30 A.M., Dental Clinic. 2.30 P.M. to 5 P.M., Medical, Surgical, and Ear, Nose, and Throat Clinics. Operations.

FRIDAY.—10.30 A.M., Throat, Nose, and Ear Clinics. 2.30 P.M. to 5 P.M., Surgical, Medical, and Children's Diseases Clinics. Operations.

There will also be a special demonstration of Surgical Cases on Tuesday at 2 P.M., and of Medical Cases on Friday at 2 P.M., by Mr. W. E. Tanner and Dr. L. R. Yealland respectively.

ROYAL NORTHERN HOSPITAL, Holloway, N.: POST-GRADUATE INTENSIVE COURSE.

MONDAY, Nov. 21st.—2.15 P.M., Dr. W. R. Reynell: The Epilepsies. 3.15 P.M., Mr. Kenneth M. Walker: Tuberculosis of the Genito-urinary Tract.

TUESDAY.—2.15 P.M., Mr. T. Twistington Higgins: Demonstration of Surgical Cases. 3.15 P.M., Dr. C. Gouldesbrough: A Demonstration of X Ray Methods in the New Department.

WEDNESDAY.—2.15 P.M., Dr. H. Semon: Ringworm. 3.15 P.M., Dr. J. W. McNee: Recent Work on Acute Specific Fevers.

THURSDAY.—2.15 P.M., Mr. John B. Hunter: Head Injuries. 3.15 P.M., Mr. C. S. Lane-Roberts: Failed Forceps Cases.

FRIDAY.—2.15 P.M., Mr. A. M. Zamora: Acute Ear Infections. 3.15 P.M., Mr. F. D. Saner: Demonstration of Surgical Cases.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 49, Leicester-square, W.C.

TUESDAY, Nov. 22nd.—5 P.M., Dr. J. A. Drake: Leprosy.

THURSDAY.—5 P.M., Dr. A. Whitfield: Tuberculosis Cutis.

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road, W.C.

FRIDAY, Nov. 25th.—4 P.M., Mr. A. Brown: Significance of Aural Pain.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

THURSDAY, Nov. 24th.—4 P.M., Dr. Pearson: Abdominal Enlargement.

ANCOATS HOSPITAL, Mill-street, Manchester: POST-GRADUATE LECTURES.

THURSDAY, Nov. 24th.—4.15 P.M. (tea at 3.45 P.M.), Mr. E. E. Hughes: Diagnosis and Treatment of Common Affections of the Rectum.

ST. PAUL'S HOSPITAL, Endell-street, W.C.: POST-GRADUATE COURSE.

THURSDAY, Nov. 24th.—4.30 P.M., Mr. Frank Kidd: Treatment of Tumours of the Bladder.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE COURSE.

TUESDAY, Nov. 22nd.—4.15 P.M., Mr. J. Morley: The Mechanism of Abdominal Pain.

FRIDAY.—4.15 P.M., Dr. R. Veitch Clark: Immunisation against Diphtheria and Scarlet Fever.

JAMES MACKENZIE INSTITUTE FOR CLINICAL RESEARCH, St. Andrews.

TUESDAY, Nov. 22nd.—4 P.M., Prof. A. Young: Some Surgical Aspects of Gastric and Duodenal Ulcer. Discussion to be opened by Dr. Norman McLeod.

FRIDAY.—4 P.M., Case reading and discussion, in which all medical practitioners are invited to take part.

UNIVERSITY OF SHEFFIELD POST-GRADUATE CLINI

FRIDAY, Nov. 25th.—3.30 P.M., Dr. Skinner: Neurologi Cases.

PEOPLE'S LEAGUE OF HEALTH.

THURSDAY, Nov. 24th.—6 P.M. (at 11, Chandos-str Cavendish-square, W.), Prof. M. S. Pembrey: Exc tory Systems.

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russ square, W.C.

WEDNESDAY, Nov. 23rd.—4 P.M., Dr. A. D. Fordy Prevention of Heart Disease.

CHADWICK PUBLIC LECTURES.

TUESDAY, Nov. 22nd.—8.15 P.M. (in the Lecture Hal the Royal Society of Arts, John-street, Adelphi, W.C Major Harry Barnes, F.R.I.B.A.: The History Housing, 1885–1927.

Appointments.

HAINE, A. W. P., M.B., Ch.B. Edin., has been appoi Certifying Surgeon under the Factory and Workshop for the Scalloway District of the County of Shetland.

Sheffield University: HAY, P. J., M.D. Edin., Hon. Lect in Ophthalmology; GROUT, J. L. A., F.R.C.S. E Hon. Lecturer in Radiology.

The Sheffield Royal Hospital: ABERCROMBIE, R. G., M Camb., Hon. Physician for Orthopædic Diseases; MAC E. G., M.B., Ch.B., D.O.M.S. St. And., Hon. Assis Ophthalmic Surgeon; IMRIE, C. G., M.D., M.R.C.P., In Assistant Physician; CALLCUTT, J. S., M.B., Ch.B. Sh Resident Surgical Officer; BEATTIE, W., M.B., Ch.B. Gl Senior Casualty Officer; FLACK, H., M.B., Ch.B. Belf., GIRLING, W. N. M., M.B., Ch.B. Edin., House Surge LYNN, A., M.B., B.Ch., B.A.O., and ARNISON, G. H., M Ch.B. Sheff., House Physicians; HYMAN, W., M.R. L.R.C.P., Aural House Surgeon; MAXWELL, C. G., M Ch.B., Ophthalmic House Surgeon; WITHEROW, J., M Ch.B., B.A.O., and PATERSON, A. J., M.B., B.Ch., B. Assistant Casualty Officers; and RAINSFORD, C., M Ch.B., B.A.O., Resident Anæsthetist.

Vacancies.

For further information refer to the advertisement colum

Aberdeen University.—Assistant in Pathology. £250 12s.

Acton Hospital, Gunnersbury-lane, W.—Res. M.O. £150.

Bristol General Hospital.—Hon. Clin. Assts.

Burnley Victoria Hospital.—H.S. £150.

Bury Infirmary.—Sen. H.S. At rate of £200.

Cancer Hospital, Fulham-road, S.W.—H.S. At rate of £1

Canterbury, Kent and Canterbury Hospital.—Third Res. At rate of £125.

Chelsea Hospital for Women, Arthur-street, S.W.—Jun. At rate of £100.

Chester, Wrenbury Hall Tuberculosis Training Colony.— £250.

City of London Hospital for Dis. of Heart and Lungs, Victo Park, E.—Res. M.O. £250. Also H.P. At rate of £

City of London Maternity Hospital, City-road, E.C.— Asst. Obstet. Surgs. Also Asst. Res. M.O. At rate of £

Croydon General Hospital.—Res. M.O. £200.

Durham County Council Education Committee.—Asst. S M.O. £600.

Evelina Hospital for Children, Southwark, S.E.—H.S. £1

General Lying-in Hospital, York-road, Lambeth, S.E.— M.O. At rate of £100.

Golden-square Throat, Nose and Ear Hospital.—H.S. £10

Hospital for Sick Children, Great Ormond-street, W.C.— Pathologist. £400. H.P. and H.S. At rate of £50. Med. Reg. £250.

Hull, Tuberculosis Sanatorium, Cottingham, E. Yorks.— M.O. £485.

Hull and Goole Port Sanitary Authority.—Asst. M.O.H. £

Inverness, Northern Infirmary.—Sen. H.S. £120.

Ipswich, East Suffolk and Ipswich Hospital.—Res. M. and £350 if single; £500 if married. Also vacancy on Vi Staff for X ray, &c.

Liverpool School of Tropical Medicine.—Lectureship in Tr Sanitation, &c. £500.

London Hospital, E.—First Asst. in Dept. of Dermatolog Syphilology. £300.

London Lock Hospital, 91, Dean-street, W.—H.S. At ra £200.

Manchester, Ancoats Hospital.—Res. M.O. At rate of £15

chester, Northern Hospital for Women and Children.—Hon. Asst. Surg. Also Sen. H.S. and Jun. H.S. £130 and £100 respectively.

on, Suffolk, St. Audry's Hospital for Mental Diseases.—Jun. Asst. M.O. £300.

Zealand Research Laboratories.—Dairy Research Bacteriologist. £850.

ria.—Four M.O.'s for Tsetse-fly Investigation. Each £660

hern Hospital, Winchmore-hill, N.—Asst. M.O. in Post-Encephalitis Lethargica Unit. £550.

rich, Norfolk and Norwich Hospital.—Cas. O. and H.S. £120.

worth Village Settlement.—H.P. At rate of £100.

outh County Borough.—Asst. M.O.H. £750.

ce of Wales's General Hospital, N.—Hon. Clin. Assts.

n's Hospital for Children, Hackney-road, E.—Cas. O. At rate of £100.

l Free Hospital, Gray's Inn-road, W.C.—Surg. Reg. £200. Med. Reg. and Gynæcol. Reg. Each £100. Also H.S.'s., H.P., Second H.P., and Obstet. Asst.

l London Ophthalmic Hospital, City-road, E.C.—Hon. Dent. S. Also Two Assistants in Refraction Dept. for L.C.C. School-children. At rate of £160.

l Northern Hospital, Holloway, N.—Ophth. S.

Waterloo Hospital for Children and Women, Waterloo-road, S.E.—Anæsthetist. At rate of £25.

bury General Infirmary.—H.S. £150.

ghai Municipal Council, Public Health Dept.—Asst. Radiologist. £1050.

a Leone, School Laboratory, Freetown.—Two Research Assts. Each £600.

rd County Mental Hospital.—Second Asst. M.O. £600.

rdshire Mental Hospital, Cheddleton, Leek.—Jun. Asst. M.O. £350.

ng District Mental Hospital, Larbert.—Sen. Asst. M.O. £400.

sea Hospital.—H.S. to Ophth. and Aural Depts. £150–£200.

rick County Mental Hospital, Hatton.—Asst. M.O. £300.

London Hospital, Hammersmith, W.—H.P., H.S., Res. Asst., Cas. O., and Aural and Ophth. H.S. Each at rate of £100. Also Radiographer. £250.

ham and East Denbighshire War Memorial Hospital.—Two Res. H.S.'s. Each at rate of £100.

Chief Inspector of Factories announces the following vacant appointments for Certifying Factory Surgeons at Aberlour (Banffshire) and Southwell (Nottinghamshire).

rths, Marriages, and Deaths.

BIRTHS.

XLEY.—On Nov. 3rd, at Warminster, the wife of H. L. Blackley, M.D., of a son.

N.—On Nov. 9th, at Riverhead, Sevenoaks, the wife of V. G. Scott Brown, M.B., B.Chir. Camb., of a daughter.

H.—On Nov. 8th, the wife of Dr. A. J. Smyth, Bole Hall, amworth, Staffs, of a daughter.

DEATHS.

LIESH.—On Nov. 9th, at Winchester-terrace, Newcastle-pon-Tyne, Jonathan Dalgliesh, M.R.C.S., L.S.A., late of Vest-parade.

.—On Nov. 10th, Agnes Hood Gray, M.B., B.S., of Welwyn arden City.

N.—On Nov. 6th, at the Old Parsonage, Dorchester, lfred Green, M.R.C.S., L.R.C.P.

EYS.—On Nov. 10th, at a nursing home, Swansea, Alfred effreys, L.R.C.P. Lond., M.R.C.S. Eng.

STONE.—On Nov. 5th, suddenly, at Edinburgh, John arlyle Johnstone, M.D., late of Melrose.

ORD.—On Nov. 7th, suddenly, Sidney Arthur Mugford, .R.C.S., L.R.C.P., of North-side, Clapham Common, ged 65.

E.—On Nov. 11th, at Rue Gambetta, Villefranche-sur-Mer, Vilfrid William Pearse, M.D., D.P.H., late M.O.H. Hong-ong.

AN.—On Nov. 11th, at Southsea, Colonel William Edward liordan (late R.A.M.C.), aged 87.

—On Nov. 13th, at Chantry-road, Clifton, Bristol, Frank erbert Rose, M.R.C.S., L.R.C.P. Lond., aged 71.

r.—On Nov. 10th, at Shepherds House, Marden, Kent, r. Alfred Smart.

PSON.—On Nov. 12th, at Stargill, Kew-road, Richmond, uddenly, Dr. Maitland Thompson, formerly of Hemel Hempstead, Herts, aged 66.

.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Comments, and Abstracts.

A DISCUSSION ON CONTRACEPTION.

EFFECTS ON THE FEMALE SEXUAL ORGANS.

In the April number of the *Catholic Medical Guardian* appeared an article by Dr. F. J. McCann on the Effects of Contraceptive Practices on the Female Sexual Organs, which has since been reprinted in pamphlet form[1] by the League of National Life, the objects of which are "to combat the theory and practice of contraception (birth prevention), to oppose any form of State or municipal assistance for the promotion of contraception, and to uphold the honour and blessing of parenthood." The article opens with a review of the evidence forthcoming from observations on animals, from which the author concludes that the seminal fluid possesses for the females other than merely fertilising functions. After considering the complex structure and chemical composition of spermatozoa, Dr. McCann writes: "I refuse to believe that in the human species this complex chemical solution—the seminal fluid—containing millions of spermatozoa has no other function than that of providing one spermatozoon for the fertilisation of an ovum" (p. 4). Though the belief that the seminal fluid, apart from its fertilising agency, exerts an influence on the metabolism of the female is not new, Dr. McCann's conception of how this influence is brought about is not the one usually held. After commenting upon the observations of Kohlbrugge that in the mouse, rabbit, and bat spermatozoa may penetrate the uterine mucosa, Dr. McCann says: "It may yet be shown that in the human species spermatozoa do unite and combine with other cells besides the ovum, and thereby exert an important metabolic influence" (p. 4). Later in the paper, however, the author treats the hypothesis above adumbrated as definitely proved. This transition from supposition to affirmation is indicated by the following two sentences: "There is no definite proof as yet available of the metabolic influence of the different components of the seminal fluid, and the special claims made for the prostatic secretion are not only unconvincing but fantastic" (p. 10); and "Thus if the seminal fluid be prevented from being deposited in the vagina, or if so deposited, it be prevented entering the uterus, or again, if it be so altered by chemicals that the spermatozoa are killed, the physiological value of coitus is nullified" (p. 9). The nullification of the physiological value of coitus following the destruction of spermatozoa is not here advanced as a hypothesis; it is stated as a fact. From these two sentences it is clear that Dr. McCann thinks that physiological benefit, apart from fertilisation, is derived by the woman, not from the absorption of prostatic secretion, but from the entry of living spermatozoa into the uterus.

The So-called Malthusian Uterus.

In Dr. McCann's view contraceptive practices injure the woman in two distinct ways. The first depends on the deprivation which she suffers when living spermatozoa are prevented from entering the uterus; the second consists in mechanical and chemical irritation caused to the lower genital passages by the use of contraceptives. "Sooner or later," says the writer, describing the first process (p. 10), "a woman deprived of the full physiological value of sexual union develops important changes in her genital organs .... The changes produced in the uterus cause a slight uniform enlargement, with uniform softening of the cervix and body, which I named the 'Malthusian uterus,' increased loss of blood at the menstrual periods, increased mucoid discharge during the menstrual intervals, together with a certain amount of backache and discomfort. There is likewise an anxious drawn appearance in the woman's face, through the fear of the failure of the contraceptive methods and the fear of pregnancy." Dr. McCann has also observed, as part of the Malthusian uterus syndrome, thickening of the Fallopian tubes, "while there are doubtless changes in the ovaries which will be discovered by further research; but meantime lutein cysts are occasionally produced as a result of contraception, and probably also fibrotic or sclerotic changes" (p. 12). Under the second heading—that of injury to the lower genital passages caused by contraception—are enumerated the following conditions: cinchonism and uterine hæmorrhage attending the use of quinine suppositories; vaginitis caused by douching with alum and lysol solutions (the Malthusian uterus may also be caused by cold douching); uterine and tubal infections caused by forgotten sponge pessaries that have become septic; and cervical lacerations caused by wish-bone pessaries.

[1] The Effects of Contraceptive Practices on the Female Sexual Organs. By F. J. McCann, M.D., F.R.C.S. London: Simpkin, Marshall, Hamilton, Kent, and Co., Ltd. Pp. 16. 1s.

The conclusions reached by Dr. McCann in this paper are severely criticised by Dr. F. M. R. Walshe in the July number of the same journal. The Catholic Church, he says, teaches that it does not lie within the province of the doctor to give advice touching the ethical and spiritual life of his patients. In a paper on birth control read before the Guild of SS. Luke, Cosmas, and Damian, Fr. Vincent McNabb stated explicitly that a patient consults his or her doctor solely upon the physiological and pathological issues of the case, and the doctor has no right to use the words "ought" or "ought not" in giving advice, since the ethical category is the domain of the individual's spiritual adviser. Thus, argues Dr. Walshe, the Catholic doctor should confine himself to the purely medical aspects of his problems, and should refuse to allow his judgment thereupon to be influenced by consideration of the ethical value of the practice under discussion. Further, in this particular question, we shall refrain from generalising, with propagandist intent, upon data which the experience of multitudes of women may later prove to be inadequate. Turning to Dr. McCann's paper as constituting "the first attempt to assemble any body of observed facts worthy of serious consideration," Dr. Walshe first comments on the lack of confirmation which this paper has received from other gynæcologists as competent and well placed to observe the effects of contraception as is Dr. McCann. It is then argued that, if the syndrome of the Malthusian uterus is the outcome of seminal deprivation, it should be a matter of indifference whether the lack arises from contraceptive practice or from the denial of sexual activity which is necessarily imposed on all single women—an implication which it would require much courage to push to a logical conclusion. Further, Dr. Walshe has clearly misunderstood Dr. McCann's perhaps somewhat ambiguously-stated views as to the element in the seminal fluid which is of physiological benefit to the woman. Dr. Walshe goes on to say: "On the clinical side let us take the most striking pathological lesion that Dr. McCann attributes to contraception—the so-called 'Malthusian uterus.' We have a slight uniform enlargement and softening of uterus and cervix, irregularity and excess of menstruation, mucoid discharge, headache, and pelvic discomfort. The patient has an anxious and drawn countenance, the alleged expression of her perpetual dread of conceiving. This clinical and pathological state is attributed by Dr. McCann to sexual excitation unaccompanied by the hypothetical effects derived from the seminal fluid. We submit that the indisputable fact is that the lesion and its associated symptoms have nothing whatever specific about them, may be due to causes wholly unrelated to contraception, and occur in women who have never indulged in it. Further, in women who have done so and present this lesion, there is no discoverable relationship of cause and effect. Therefore, in the absence of any reasoned case for the ætiology invoked by Dr. McCann, it is not hard to determine by what familiar paths he has arrived at his conclusion." Dr. Walshe ends the paper by stating it as his view that the Catholic doctor can only contribute honestly and helpfully to the end which, in this matter, the Catholic Church has at heart (namely, the minimisation of contraceptive practice) by being given the latitude to use his influence with his patients in matters of ethical and spiritual import. Indeed, it is well-nigh impossible for the doctor to avoid assuming the rôle of moral adviser as long as it is conceded that psychotherapy falls within his province.

The October number of the *Catholic Medical Guardian* contains further contributions by these writers, the most notable feature of which is a qualification made by Dr. McCann to the conditions under which he holds that seminal deprivation can be harmful to women. This deprivation is apparently only regarded as harmful when the woman's "sexual appetite has been habitually roused and thwarted." Injury would thus not be sustained by unmarried or sexually abstinent married women as a result of seminal deprivation, but only by those women who practise contraception. The "thwarting" of the sexual appetite referred to is clearly not a psychic thwarting, because investigations have shown that in the great majority of cases the woman's orgasm is unaffected by the use of proper contraceptives. The thwarting would rather seem, in Dr. McCann's view, to be of the nature of a biochemical deprivation, in which case it is not easy to see how such deprivation differs from that sustained by unmarried women.

Limitation of Present Knowledge.

From these two papers it is clear that data with regard to the harmfulness or otherwise of contraceptive methods are still conspicuously lacking. It is at present unknown whether, during coitus, spermatic fluid in large quantities enters into the human uterus. It is maintained by some that the os dilates during the orgasm of the woman and that it may then even admit the glans of the penis. Though evidence is available that this happens in certain animals there is at present little to show that it occurs in human beings. The site of absorption of the seminal fluid in genital tract of the female is undetermined; the constitu of that fluid (whether spermatozoa, prostatic, or ot glandular secretion) which in particular has physiolog value for the female, has not been ascertained; it is e disputed whether the seminal fluid is absorbed, in a benefi physiological sense, by the woman at all. Further, evidence propounded by Dr. McCann hardly covers all ki of contraceptives. Thus quinine suppositories are r being displaced in favour of suppositories containing la acid and chinosol. Recently another suppository, spermicidal activity of which is said to depend on evolution of CO_2, has come upon the market. It is as not definitely known whether these suppositories ca harm; neither have their spermicidal powers in vitro b published. The spermicidal action of at least two ki resides in the acid they contain, it being known that movements of spermatozoa are inhibited by acids in concentration. It is not yet definitely determined w degrees of acidity will, in different lengths of time, and different temperatures, destroy human spermatozoa. Furth the degree of acidity which may be achieved, under differ conditions, by the vaginal secretions of women is certainly known, neither has it been established bey question whether acidity may be influenced by constitutio factors, or whether it is always produced by bacteriolog activity alone.

Few responsible doctors would recommend a spo pessary (especially singled out for condemnation by r. McCann), which is notoriously capable of becoming infect to a woman who was not equal to the task of keepin clean; and very few would under any circumstances rec mend a wish-bone pessary. And the fact remains t contraceptives of various kinds are used by hundreds thousands of women who, to their knowledge, suffer harm from them. Moreover, there are not lacking am these, women who admit an improvement in general he from discontinuance of the practice of coitus interruptus liberation from the anxieties which so frequently attend form of birth control. And lastly, even if it were establis that all existing methods of contraception are injurious medical grounds, it would hardly follow that a fool-pr harmless, and certain method was incapable of be discovered in the future.

Beginnings of Research.

It is therefore interesting to learn that research upon subject is proceeding in this country and in America. I recent issue of the *Medical Journal and Record* (New Y May 18th, 1927) will be found an article by Dr. Rob Latou Dickinson, which describes a comprehensive sch of research now being undertaken by the American Bi Control League. In this country a Birth Control Invest tions Committee has been founded under the chairmans of Sir Humphry Rolleston (see THE LANCET, Oct. 2 p. 944) to conduct statistical research upon the efficacy contraceptives now in use in different parts of the wo for this purpose it has prepared a questionaire which filled in in a sufficient number and a sufficient variety cases, will yield that quantity of accurate statist information which is now lacking. This committee is seeking to discover new contraceptive methods free fr the various drawbacks which affect most existing o Any doctor who may possess data likely to yield rel information is invited to communicate with the Secret of the Committee, the Hon. Mrs. Marjorie Farrer, 4 Clanricarde-gardens, London, W. 2.

THE WALTER AND ELIZA HALL INSTITUTE OF RESEARCH.

AN interesting feature of the eighth annual report of research institute at Melbourne is the evidence it affo of constant intercommunication with this country, b through interchange of workers and of material. A chemist from Cambridge has just been appointed and continue studies on hæmoglobin begun in Sir Freder Hopkins's laboratory. The varied and valuable pieces work being carried out include research into the pathol and treatment of hydatid disease, with a survey of o 3000 cases in which complement fixation, intraderm reactions, and precipitin reactions have been done; same tests in bilharzia disease; the immunity reactions fluke infestation in sheep; studies on pancreatic regene tion in guinea-pigs; the bacteriology of puerperal seps the end-results of tuberculous disease of the hip; work on cancer and dental decay. It is clear that work is as wide in scope as it is careful in detail. A g deal of routine serological and biochemical work is carr out, as well as ordinary clinical pathology. During year a hundred new colour preparations were added to museum, and the catalogue was completed. The instit library has also made good progress.

" VICTIMS OF PEACE ": HALD SANATORIUM, VIBORG.

ENMARK, during the war, gave shelter to many English ers and sailors, who, though officially interned as soners of war," were treated as honoured guests. For housing of them and soldiers of other nationalities, ding Russians and Germans, a large camp, with the familiar wooden huts, was established on the great n of Hald, near Viborg, and in a beautiful cemetery guous rest the remains of English victims of wounds or se. A recent publication upon the sanatorium shows the Hald camp was well organised and possessed sub-latest design. The winter climate of Jutland being very severe, the sanatorium has been able to discharge its functions only during seven months of the year; but to enable the work to be unbroken in winter some army huts are being reconditioned, by the provision of double floors and additional outer walls and roofs, the spaces between the old and the new structures being filled with non-conducting peat; central heating, radiators, and hot-water pipes have been installed. The buildings of the sanatorium accommodate some 500 patients, and they are always fully occupied, while on an average 150 patients daily receive special treatment. After-treatment is cared for, the patients on leaving being given full instructions and leaflets telling them how to

Hald Sanatorium near Viborg, Jutland, Denmark.

al buildings, and the sensible decision was reached to t, when it had served the purposes of its origin, into a al for the " Victims of Peace," under which heading cluded especially all those who were suffering from es induced or aggravated by the war, particularly us diseases.

scheme for the sanatorium was initiated by the h Red Cross Society, aided by the State, and the tion is supported by contributions from the county which the patients are sent to Hald and from the " Invalids' Rest " and " Sick Pensions " funds. The ts pay at the rate of about £45 a year for their board. hief affections dealt with are diseases of the joints, of eart, and of the nervous system, and treatment is by the provision of baths of all sorts, massage, actino-y, electricity, and heat, the apparatus being of the " carry on " at home. The dietary, when special food is needed, provides six special diets for specified classes of cases. The patients are enjoined to live out of doors as much as possible; walking is encouraged and gentle games, such as croquet, are indulged in by those who are convalescent.

" Up to the time of my visit," writes the correspondent who has supplied these notes, " between 11,000 and 12,000 patients had been treated at the sanatorium. There is a staff of four medical men with two lay officials. The superintendent is Dr. Brinck Eliassen and the second-in-command is Dr. Hans Soerensen. So far as a layman can judge, from an extended and intensive tour of inspection, Hald Sanatorium is excellently managed; it is worthy of a visit from any British medical man interested in institutional treatment of this character." E. W. R.

RT OF THE INFANT WELFARE CONFERENCE.

report just published of the proceedings of the al Conference on Maternity and Infant Welfare, held ly in the Great Hall of the British Medical Association, ns within its 218 pages the text of all the papers read conference, and a full report of the discussions which rovoked. The subjects dealt with are both of a social edical nature, and include wet-nursing, the incidence ereal disease in antenatal and postnatal clinics, the of artificial light treatment for children under school nd respiratory disease as a factor in infant mortality. eport may be obtained for 2*s.* 6*d.* from the National e for Health, Maternity, and Child Welfare, at Carnegie , 117, Piccadilly, London, W. 1.

OVALTINE RUSKS.

have received from Messrs. A. Wander, Ltd., Manuing Chemists, 184, Queen's Gate, London, S.W., and Langley, Hertfordshire, where the laboratories and are situated, specimens of Ovaltine rusks, which are rom pure wheaten flour incorporated with the Ovaltine food beverage which is manufactured from barley milk and eggs. The rusks are convenient in size, slightly sweet in flavour, and break up easily in the . They should be useful in the feeding of children fants, especially during the period of dentition. For s, toast, trifle, gateau, custard, pudding and other an be made from these rusks, and receipts for such ations are supplied by the makers. The rusks can e used instead of ordinary biscuits, or they can be with hot or cold milk, or with cheese. The varied yment claimed for them by the manufacturers seems uite justifiable.

SUPERFŒTATION.

THE establishment of pregnancy normally inhibits further ovulation, so that insemination does not result in conception until after the young are born. Cases have been recorded from time to time in which it has been supposed that this rule has been broken. The evidence mostly consists either of the presence of one or more conspicuously small young in a litter of rabbits or pigs, or in the occurrence of two parturitions separated by an interval of a few days. Neither is proof of superfœtation, for the growth of a number of embryos is not always uniform, and the two horns of the uterus are to some extent capable of independent action. Several highly inferential cases of real superfœtation in pigs and sheep are, however, recorded[1] by Mr. A. D. Buchanan Smith, and one in particular seems to be satisfactorily proved. A half-bred ewe was in company with a Wensleydale ram up to Nov. 9th, 1926; she then went to another farm where the only ram was an Oxford Down. On March 7th, 1927, she produced two lambs with the characteristics of the Wensleydale Half-bred cross. On April 14th she lambed again; the lambs were quite unlike those of the previous birth and showed clear signs of an Oxford Down sire. The genetical evidence disposes of the possibility of ova lying dormant for a time after fertilisation as they do in some deer. The interval between the parturitions was 38 days, and as the ovarian cycle in the sheep is about 18 days it seems impossible that the two rams should have fertilised ova discharged at the same œstrous cycle (superfecundation). The conclusion is that ovulation and conception must have taken place during pregnancy, and the evidence seems strong.

[1] Journal of Anatomy, 1927, lxi., 329; lxii., 100.

AN EXTRACT OF VITAMIN B.

THE chemical department of the Institute for Medical Research at Kuala Lumpur undertakes a great variety of work not only in connexion with the Institute itself, but for various departments of Government of the Federated Malay States. In an appendix to the report for 1926 Mr. R. W. Blair describes, in addition to a mass of work in which food and drugs and poisons are prominent, the preparation, by an improved method, of vitamin B extract from rice polishings. Fresh rice polishings of the best quality are sifted from husk and broken rice, and extracted with 20 per cent. alcohol containing 0·1 per cent. of hydrochloric acid; the extract after a week's contact is filtered, concentrated under reduced pressure, further purified, and brought to standard strength. About 4·5 kg. of polishings are worked up daily, and in 1926 over 8600 fluid ounces of extract were prepared for distribution to practitioners, either gratuitously or at the estimated cost of production, for the treatment of beri-beri.

AN UNUSUAL CASE OF LACTATION.

OPINIONS are divided as to the part played by nervous and chemical influence in the initiation of lactation. Endocrinologists hold that hormones formed in the reproductive organs circulate in the blood and stimulate the mammary cells directly. Psychologists lay more emphasis on the signs and sensations of pregnancy causing stimulation of the nerves to the breast through the conscious and unconscious mind. In support of the latter view Dr. W. J. Jago[1] describes an unusual case of lactation in a Soudanese woman, who, though barren, had long wished for a child. Eventually she stole the new-born infant of another woman. This child she nursed at her own breast, which gave a copious supply of milk in spite of the fact that she had never herself been pregnant.

PIGEONS OF THE TEMPLE.

THE *genius loci* who inhabits the Temple has a special influence in promoting good literature. We need only refer to two instances: there is Lamb's well-known essay on the Old Benchers of the Inner Temple in which the particular Elia flavour is most pronounced, and there are all the typical Thackeray passages in Pendennis and in the "Memoirs of Mr. Deuceace," especially Chapter XXX. of the 1849 edition of the former work. The little paper now before us, reprinted from the *Cornhill Magazine* for January, 1921, is written by a medical man, by name Arthur Brebner, who served in the R.A.M.C. during the war, was invalided out of the service, was living in the Temple in 1918, served later as a ship's surgeon, and died from tuberculosis in 1922. The paper is written with a fascinating flavour of Elia and treats of the Temple pigeons as reincarnations of well-known lawyers, both those in real life, such as Blackstone and those of fiction, almost as real, such as Serjeant Buzfuz. Mr. Brebner discourses pleasantly about these birds and their doings, and we think that St. Francis, to whom he refers in his concluding paragraph, would have read the paper with pleasure. We are glad that Mr. Brebner's widow has had the paper reprinted and note that it is to be obtained from Mr. P. Medcalf, the Cloisters, Temple, E.C. 4.

PRESENTS AND "TIPS" IN NURSING HOMES.

To the Editor of THE LANCET.

SIR,—I hope the experience of "Physician's" patient is exceptional. I have been matron of a nursing home for very many years and have always deprecated the giving of valuable presents, whether in money or in kind, to my staff. When consulted by a patient I suggest a box of chocolates or a pair of gloves. It is the recognition of her services, not the value of the gift, that the nurse appreciates. I may add that "Physician" is quite wrong in thinking that it is rich patients that give more liberally. It is the other way about. I am, Sir, yours faithfully,

Nov. 5th, 1927. MATRON.

BANK NOTES AND CHOLERA.

IN North China paper money is used almost exclusively and Dr. H. M. Jettmar[2] thought it worth while to find out how long bank notes contaminated with the cholera vibrio remain a source of infection. A series of bank note slips were contaminated by fingers which had been dipped in a cholera stool. After varying periods of time these slips were put in tubes of peptone water from which, after incubation, further cultures were made. The agglutinability of the vibrios cultured from the infected bank notes was then compared with that of organisms from the original stool. It was found that they remained alive on bank notes for four hours and that they retained the same cultural and serological characteristics as the original strain. Their lives were shortened by lack of moisture on the notes and exposure to sunlight.

[1] Kenya and East Africa Medical Journal, 1927, iv., 114.
[2] National Medical Journal of China, 1927, xiii., 254.

SUPERANNUATION FOR LABORATORY ASSISTAN

WE learn with pleasure of a scheme adopted by London School of Hygiene and Tropical Medicine for superannuation of technical and laboratory assistant their employ. Its immediate object is to improve the st of laboratory assistants by placing them on a definite g and scale of salary, which closely follows the lines of Federated Superannuation Scheme for Universities. amount equal to 15 per cent. on the salary, 5 per contributed by the assistant and 10 per cent. by the sch is applied in payment of a yearly insurance premiu secure either an annuity on retirement or a lump under an endowment assurance policy. The schem optional in the case of salaries from £100 to £160 per ann and above that it is compulsory. The scheme has accepted with enthusiasm by the whole of the labora staff concerned, which recognises the value of securit tenure and the opportunities of promotion which it ens provided that similar arrangements become the rule where. We confidently predict that other institutions follow the lead given by the London School.

BLOOD CALCULATIONS.

THE hæmatological nomogram of Dr. E. J. War affords a ready method of calculating the colour index, volume index, and the saturation index of the red cel of the blood. In addition it will give on slight correc the average diameter of the red cells. Up to the pre this nomogram has only been available in the page Dr. Warburg's original communication. It has now published for general use by Levin and Munksgaard Copenhagen. As published the nomogram is mounte a stiff cardboard and provided with a loop by mean which it may be hung on the laboratory wall. It i convenient size so that by the simple application straight edged ruler the desired figures may be read The data required for the use of the nomogram co of the hæmoglobin percentage, the number of red cells c.mm., and the volume of cells per cent. of blood as determ by the hæmatocrit. The general adoption of this nomog should save trouble to those engaged in the study of blood.

THE MODEL ABATTOIR SOCIETY.

THE annual Benjamin Ward Richardson lecture of Society was delivered on Nov. 10th by Dr. Gerald Leigh medical officer (foods), Scottish Board of Health, at Royal Sanitary Institute.

Dr. Leighton said that the problem of the satisfac public health organisation of the meat supply had before all modern civilised communities for years past, all of them had come to certain conclusions which fundamental. In every country it had been realised it was necessary to concentrate the slaughtering of animals in public abattoirs and to make special arrangem for scattered rural districts. It was impossible to main an adequate system of inspection in thousands of s private slaughterhouses. All countries had decided that inspection should be in the hands of well-trained professi inspectors with a knowledge of comparative pathology bacteriology. It was also necessary to have a legal cod judgments of morbid conditions affecting animals used food. Special laws, apart from general food laws, were required to deal with various phases of the industry. the least was it necessary to see that only such method slaughtering as were recognised as being consistent humane methods should be permitted. The essence humane slaughtering in his opinion was the rapid produc of unconsciousness in the animal before the operatio bleeding was performed. Many instruments on the ma were satisfactory when used by an expert, but none satisfactory in the hands of a stupid or careless fool. point was to get humane killing with a good keeping qu of the dressed carcass.

Public abattoirs had been established in Scotland, said Leighton, for two generations, and to-day about 92 per c of the home-killed meat in Scotland passed through pu abattoirs, in which there was a legal system and standar meat inspection established. In his opinion there was little cruelty in abattoirs; there was probably far mor the transit of the animals by land and sea, or in preliminaries before slaughtering. Nor did he think was any cruelty in the open hall system of abattoirs w the cattle could see all going on around them. What ca resented was being dragged through narrow passages, strange places, by unknown people. They would have same objection to being dragged anywhere. He urged importance of public abattoirs from the point of view of t teaching facilities for the trade itself in technical matt and for those qualifying for the position of meat inspec as well, because they were the only places in which all by-products of the industry could be profitably d with.

The Huxley Lecture
ON
DIATHESIS.

elivered at Charing Cross Hospital on Nov. 24th, 1927,

BY SIR ARCHIBALD GARROD, K.C.M.G., D.M., LL.D., F.R.S.,

GIUS PROFESSOR OF MEDICINE IN THE UNIVERSITY OF OXFORD; CONSULTING PHYSICIAN TO ST. BARTHOLOMEW'S HOSPITAL AND TO THE HOSPITAL FOR SICK CHILDREN, GREAT ORMOND-STREET.

'Men are called healthy in virtue of the inborn capacity easy resistance to those unhealthy influences that may inarily arise; unhealthy in virtue of a lack of that acity."

THIS passage from Aristotle's Categories,[1] written 00 years ago, may well serve as my text to-day. all know what we have in mind when we speak health and disease, but it is not easy to frame initions which shall embrace all that these terms ote. We still need to pay heed to the warning that great teacher, Thomas Watson,[2] that disease st not be regarded as "a thing, or as the phrase s, a separate entity, by which the body is possessed l damaged—something which can be contemplated apart from the body which it may invade."

As Aristotle's definition suggests, the state which call health is one of unstable equilibrium, maintained means of a continual struggle, and no mere escent phase. Thus, in a recent lecture, Andrewes[3] ke of the healthy body as one which "is not only fectly adjusted to its surroundings, but is capable adjusting itself, within reasonable limits, to the umstances of a rapidly changing environment." ease, on the other hand, he defined as "a condi- in which the body has fallen, in lesser or greater ree, out of harmony with its environment." other recent writer, Draper,[4] defines disease as a expression of reaction between a complex set external circumstances, and an equally complex anism striving to survive in the midst of them." narrower definition will suffice to include, as it s must do, such widely different clinical and ological pictures as those of small-pox, malaria, vy, and myxœdema.

is obvious that, as the word implies, disease is ething appertaining to the patient, and is neither invading organism nor a poison introduced. y of the outward signs and symptoms by which recognise diseases are evidences of the struggle h the organism is putting up against enemies h beset it; and as Andrewes pointed out in lecture from which I have quoted, even inflamma- and fever may be regarded as beneficial reactions. erial infections do not necessarily cause disease, "when the body begins to defend itself against k does trouble arise." Nor must we forget, as ave been apt to do in recent years, that not all dies come from without; although the mani- tions of those which do not are often provoked external influences, trauma, exposure, and the

is an indisputable fact, which has been recognised early times, that some individuals, members of families, and of some races of mankind, are nore liable than others to suffer from particular dies; and around that basal fact have grown up various doctrines of diathesis.

or some writers diathesis was nothing more than disposition to this or that malady; for others as itself an extremely chronic disease, which, the hidden mycelium of a mushroom bed, mani- itself here and there, and from time to time, by ard signs. Others, again, gave a wider significance e term, as a liability to a group of allied affections, spoke of an arthritic or a strumous diathesis. held that a diathesis might be acquired, but it was usually regarded as an inborn peculiarity. Lastly, there have always been those who have looked upon the term diathesis as merely a cloak for ignorance, a name masquerading as an explanation.

In medical writings of the first half of the nineteenth century the subject figured largely, and among its foremost exponents in this country were Jonathan Hutchinson,[5] and Thomas Laycock,[6] whose teaching had so wide an influence in the Edinburgh School. The earlier writers claimed as diathetic diseases maladies which, as we now know, have hardly anything in common, some of which are due to bacterial or protozoal invasion, whereas others are due to the lack of some essential factor in diet.

Nor is it to be wondered at that the conceptions of our fathers regarding this subject seem to us obscure, nor that when we read what they wrote upon it we seem to wander in a fog; for when their doctrines were formulated the theory of evolution had not yet emerged; the existence of chromosomes and the importance of the germ plasm were not suspected; the laws of heredity were quite unknown, and hormones and vitamins had not been heard of. We who hold the keys, which they helped to cut, to fields unexplored by them, are well able to appreciate the pitfalls which lay in their path.

The coming of cellular pathology, and above all the growth of bacteriology and protozoology, turned men's minds into other paths. Attention became concentrated upon the agents of disease rather than upon the constitutional factors, which latter received but scant attention; the very conception of diathesis was discredited, and the word itself was relegated to the scrap-heap of obsolete terms, together with such words as "idiopathic" and "strumous."

Now, once more, the pendulum is returning from the limit of its swing; interest in "constitution," which word has, to a large extent, replaced "diathesis" and with a wider connotation, is reawakening more perhaps in other countries than in our own. A large literature in the German tongue has appeared in the past few years, and to Naegeli's[7] writings, and to the work of Julius Bauer,[8] a veritable storehouse of ideas and facts, I would express my indebtedness. In America constitutional clinics are being established, notably that of George Draper, in which valuable work has already been done. In this country Hurst,[9] Ryle,[10] and Maitland Ramsay[11] have, by their discourses, quickened a new interest in the subject.

Despite the fact that in the New English Dictionary diathesis is defined as "a (permanent or acquired) condition of the body which renders it liable to certain special diseases or affections; a constitutional predisposition or tendency," we are little inclined to-day to admit as constitutional states or diatheses, conditions, however long-lasting, which have been acquired; and in this lecture I shall speak of inborn conditions only.

When I was honoured by the invitation to deliver this Huxley Memorial Lecture in Huxley's own medical school, I determined that I would try to sketch the doctrine of diathesis as it appears in the light of recent advances of science, and to emphasise once more the importance of constitutional factors in connexion with the incidence and shaping of maladies. With that aim in view I would ask you to detach yourselves, as far as may be, from the medical standpoint, and to avoid, for the moment, the taking of sides in the struggle between man and his diseases.

There are two main paths by which my subject may be approached: First, by statistical and anthropometric methods, on Galtonian lines. This method is being pursued in Draper's clinic. Draper, who aims at approaching his subject from four different directions—the anatomical, physiological, psychological, and immunological—compares these to the four panels of a Japanese screen, which, although distinct, form parts of a single picture.

The second path is by study of particular examples, and of the light which they throw upon the general

problem. This might be styled an experimental method, but the experimenter is not man but Nature. It is along this second path that I invite you to walk with me to-day.

In pursuit of our inquiry we need to carry our thoughts back very far, to the chromosomes into which, in the words of J. B. Leathes,[12] "are packed from the beginning all that pre-ordains, if not our fate and fortunes, at least our bodily characteristics, down to the colour of our eyelashes." In the illuminating address from which I have quoted, Leathes spoke of the chemical aspect of evolution as follows: "The deposition of matter in molecules or aggregates, unstable or incalculably variable, that has and retains the power of determining the deposition of matter not yet so disposed, in such a way as to conform to its own deposition, or to patterns which help it to exercise this power, is all that must be premised for the whole of evolution to follow." Such a conception would certainly not have been rejected by Huxley,[13] who as long ago as in 1876 said that "to be a teleologist and yet accept evolution it is only necessary to suppose that the original plan was sketched out—that the purpose was foreshadowed, in the molecular arrangements out of which the animals have come."

It cannot fail to be that natural selection works through chemical as through structural modifications, nor can it be doubted that, as Huppert [14] maintained 30 years ago, the features in which an organism differs from type are foreshadowed in the germinal cells, and indeed in the complex molecules of which the germ cells are built up. As evolution proceeds, from the single cell to the nations of such units which constitute higher animals and plants, the somatic cells of which the various tissues are built up become specialised for the several purposes which they have to serve, the renal cells for their work and the hepatic for theirs, and in so doing lose at first part, and later almost the whole, of the power which the primary cells possessed, of reconstruction and repair of tissues; such repairs as are possible are carried out by the wandering cells of the mesenchyme. Only the germinal cells retain the power of reproducing all the tissues and structures of the body, which renders possible the propagation of the species. Whatever may happen to the somatic cells affects the individual, but not the future of the race. Just as in a hive the worker bees are specialised for the carrying out of their appointed tasks, but have no share in the continuation of the race, save in so far as they care for the fertilised queen; so may we think of the somatic cells as waiting upon the needs of the germ plasm.

There is nothing at rest in the living cell, nor in the molecules of which it is composed, nor even in the atoms, with their restless electrons, which go to the making up of those molecules; and in the complex of physical and chemical changes which we call life there are infinite opportunities for departure from type. As evolution proceeds organisms are produced which differ in chemical structure as well as in form, until the proteins of a group of living things become so far differentiated that they behave as foreign proteins to members even of kindred groups. When that stage is reached interbreeding is no longer possible, the species has become established, and its main characters are thenceforward maintained.

As the organism becomes more elaborated there are ever-increasing opportunities of departures from type. As Andrewes says, "a chronometer can suffer from a greater variety of defects than an hour-glass."

Each one of us, and each such departure which he exhibits, is one of Nature's experiments. Huxley,[15] in an address delivered to the International Medical Congress in 1881, after speaking of the vital phenomena which furnish the normal and typical characters of the species, added: "Outside the range of these conditions the normal course of the cycle of vital phenomena is disturbed; abnormal structure makes its appearance, or the proper character and mutual adjustment of the functions cease to be preserved. The extent and importance of these deviations from the typical life may vary indefinitely: they may have no noticeable influence on the general well-being of the economy, or they may favour it. On the other hand, they may be of such a nature as to impede the activities of the organism, or even to involve its destruction."

It is with unfavourable deviations that the study of diathesis is concerned; but if there were no beneficial ones there would be no evolution or advance; progress could go no further; the species could, at best, be saved from regression. Unfavourable modifications tend to be eliminated, because they diminish the capacity of the organism to conform to its environment; and among the factors at work in the elimination of the unfit none is more potent than disease.

A new departure may be both good *and* bad, if the advantage outweigh the disadvantage it may persist. Thus when man assumed the erect position and gave up the hammock-like support of the abdominal viscera which is an essential part of the vertebrate plan, he thereby laid himself open to a number of minor ills, varicose veins, hernia, and the like; but the loss was as nothing compared with the gain, which was no less than the mastery of animate nature on this planet.

Modifications acquired during the lifetime of the subjects, as results of disease or accident, do not come within the scope of our inquiry. That they are not transmitted to future generations a great mass of evidence testifies; they concern the individual only and not his family or race.

Mutations, the steplike variations which originate in the germ-plasm, and are transmitted, are produced by addition to, subtraction from, or alteration in the factors of inheritance already present. The departure from type may be very slight, or so great as to justify the use of the term *per saltum*. Goodrich pictures what may happen to a complex molecule by removal of an atom, or of an atomic grouping, and adds: "In some such fashion do we imagine the changes occur in the factors of inheritance." Lenz [17] carries the same conception a step further and suggests that on a physico-chemical view of the germ-plasm it is not to be expected that it will undergo smooth, continuous changes, but rather that it will be changed in lesser or greater steps, by the removal or shifting of the positions of molecular groupings. I would venture one step further still and point out that we know, from experiments in breeding of Drosophilia, that the same mutation may originate over and over again, in the same species; just as a given chemical reaction will be repeated as often as the necessary conditions are reproduced.

Some mutations are dominant in Mendel's sense and others recessive; but the study of human inheritance on Mendelian lines is beset with many difficulties. For obvious reasons the proportion of normal and abnormal members in the small human families supplies little accurate information as compared with that afforded by the experimental breeding of plants and animals; and we are often driven to apply the knowledge which has been gained by such breeding experiments to human problems, despite the lack of numerical checks.

Thus, albinism, a mutation common to man and lower animals, is shown, by experimental breeding, to be recessive, and the peculiarities of its incidence in man supply clues for the recognition of the recessive character of some other human mutations. We learn that a peculiarity which is wont to appear in several children of normal parents, and with unusual frequency in children of consanguineous matings, may be regarded as recessive. For, as Bateson pointed out long ago, a rare recessive character, to which both parents must contribute recessive genes, is far more likely to appear when parents are both members of a family which can

e recessive factors; and the rarer the anomaly e higher should be the proportion of such matings nong the parents of those who exhibit it. Again, utations which are transmitted through normal nales to the males are regarded as sex-linked cessives.

On the other hand, a character which is handed wn in a family from generation to generation, and ects a large proportion of its members, is probably minant.

Some of the inborn and hereditary characters ich originate as mutations are more obviously ncerned with the structure of parts and others th their functions, and it will be convenient to nsider them under these headings, but not to ume a sharp line of division between them. For indeed, all the potentialities of the future organism ide in the molecular arrangements of the germ-sm, we must assume that even structural anomalies ve a molecular basis; and how greatly chemical tors may modify form is revealed by the study of turbances of the endocrine balance. Keith [18] has phasised this, and not a few zoologists, notably odrich,[19] are prepared to admit the influence of mical factors upon animal structure; but we st be careful not to press such analogies too far, it is obvious that the malformations by defect or ess have little in common with the modifications facial contour and bodily proportions which result m endocrine disturbances.

No two individuals of a species are exactly alike, l even monoval twins differ in their finger-prints; are the differences chiefly in structure. We man beings differ in a thousand ways, in form, in mical life, in mental methods. Of many of the nor differences few of us are even aware, and each is is apt to think of himself as normal. In a mixed pulation such as ours all sorts of factors contribute he average of the race and to its morbid liabilities. e time of life is not without influence; the child his own special maladies, and his points of least stance are not the same as those of the adult. people, too, have their special diseases, and age fers a comparative immunity from others. Indeed, are faced with a problem of great complexity n we attempt to unravel the strands which go to making of man.

tructural mutations are of all degrees. Some are, btless, improvements, some may be classed as nportant, others again are obviously detrimental, some, the most extreme, are incompatible with vival. Minor malformations may be harmful in ue of disfigurement which they cause, or because y increase the risks of accident. When an ortant organ is malformed its function may be aired and so life may be endangered, as witness graver cardiac defects and cystic disease of the neys. Once more a malformed part may prove a *locus minoris resistentiæ;* malformed cardiac valves specially liable to be the seats of malignant ocarditis.

would be easy to collect a number of examples morbid effects of structural malformations, but ry few must suffice. In his book on the "Pedigree Disease," Hutchinson cited spontaneous dislocation alformed joints, and the liability to intussusception ch results from cæcal mesentery. Of far wider ortance is the view put forward by Hurst, who ibutes the X ray appearances of the so-called ertonic and dropped stomachs, with the attendant erences in the gastric secretion, to differences in shape and length of the stomach. But it is some-g more subtle than the influences of anatomical malies which we have in mind when we think of hesis or of constitutional liabilities to disease, and not propose to dwell further upon that aspect he subject to-day.

n the borderland between structural and functional malies lies a large group of diseases of which opose to speak under the name of tissue defects, seeing that they exhibit changes, not in any individual structure or organ, but in special tissues. To one large and important group of these, often spoken of as heredo-familial diseases of the neuromuscular system, Gowers,[20] whose teaching was wont to suggest to his hearers fresh outlooks and new lines of thought, assigned the name of "abiotrophies." Although inborn, the maladies in question do not, as a rule, show obvious signs until after several years of life, and thenceforward are progressive. Gowers pointed out that in some of them at least the nerve or muscle cells wither away, like plants without soil, to be replaced by fibrous tissue, "tissue weed" as he called it. Some of the abiotrophies are dominants, such as Friedreich's ataxia; some are recessives, and pseudohypertrophic muscular dystrophy is a sex-linked recessive, transmitted by normal mothers to their sons.

The period of onset of such maladies is usually much the same in members of the same generation, but there is a tendency for the onset to be earlier from generation to generation. As Mott suggested, in another connexion, diseases which so behave tend to eliminate themselves—a virtuous circle, so to speak—but a sex-linked recessive ensures its own persistence.

The boundaries of the several diseases of the group are not always clearly defined, and examples of more than one abiotrophy are met with in different members of the same family. In some cases of the myopathies defects of individual muscles are met with, and in others areas of change have been found in muscles not obviously involved.[21] Of less importance, save as indications of structural instability, are the miscellaneous malformations which are occasionally met with in association with an abiotrophy.

It has been pointed out by Martius, Julius Bauer, and others, that the abiotrophies are not limited to the neuromuscular system, and we are probably justified in including in this class certain maladies based upon hereditary abnormalities of the blood corpuscles, red and white, and especially congenital hæmolytic jaundice. The brittleness of the red corpuscles in cases of that disease was first observed by Chauffard, and is well known; Naegeli also has observed that the erythrocytes, which in the microscopic field appear to be microcytes, are found, nevertheless, to exceed normal corpuscles in volume; whence he concludes that they are more globular in form.

Naegeli [22] regards the abnormality of the red corpuscles as the primary feature of the condition, which may only manifest itself by obvious signs under the influence of external stimuli such as infections or toxic agents. The hæmolysis and splenic enlargement he regards as secondary phenomena; and it is a well-known fact that the fragility and abnormal form of the red corpuscles persist, in greater or less degree, after removal of the spleen. It should be mentioned, however, that there are those who hold that the primary trouble is in the spleen, and that the abnormality of the corpuscles is secondary thereto. Congenital hæmolytic jaundice is a typical family anomaly, and behaves as a dominant Mendelian characteristic.

As tissue defects may also be classed certain conditions characterised by fragility of the bones. The warning signal of the best known of these is a blue colour of the sclerotics, owing to a defect of the fibrous tissue of the sclerotics which allow the choroidal pigment to show through them. The anomaly has been met with in large numbers of members of the affected families, and in successive generations. As they grow older the affected members, who generally give a history of repeated fractures of bones on slight provocation, tend to develop otosclerosis—an interesting example of the development of a progressive disease, otosclerosis, in the subjects of an inborn anomaly. The fragility would not appear to be due to any deficiency of lime salts in the bones, but to a defect of the mesenchyme, with a disturbance of connective tissue formation.

More recently it has been revealed, by X ray examinations, that in certain subjects the fragile bones cast uniform dark shadows, as if solid throughout, as indeed they are in some cases. The fragility is ascribed to loss of elasticity, and perhaps to loss of tubular structure. The condition which behaves as a recessive character, and has been met with in children of first cousins, with undue frequency, is probably progressive, for various degrees of obliteration of the medullary cavities have been described. In advanced cases enlargement of the spleen and lymphatic glands has been observed, presumably to compensate for loss of bone-marrow.

Of even greater interest, from our point of view, is the strange malady known as myositis ossificans progressiva. This, too, seems to be an anomaly of the mesenchyme, and Bauer suggests that the cells of the mesenchyme retain, in the subjects of this disease, the power, which they normally lose, of producing bony tissue. The bony formation occurs in the connective tissues in and around the affected muscles. Two features of myositis ossificans call for special mention. The first is the association with it, in more than 70 per cent. of all cases, of congenital deformities of the great toes, and in some cases of the thumbs also. The nature of the deformity is not so constant as its seat, but the digits are usually shortened, by suppression of a phalanx or by fusion of phalanges. This association is obviously something quite different from the occasional coexistence of miscellaneous malformations not infrequently met with; but it is difficult to surmise what is the nature of the link between the malformation and the malady. The second point is scarcity of records of hereditary transmission of myositis ossificans. A few instances of its transmission are known, and in one remarkable case a father who had the digital deformities, but no myositis, had a son with identical deformities who developed myositis in childhood.

The tissue defects under discussion bear eloquent witness to the importance of constitutional factors in disease, but they have not in the past played any part in discussions on diathesis. Many of them, indeed, were little known, if known at all, when the earlier writers were occupied with the subject. They teach the important lesson that diseases which develop in later childhood, or even during adult life, may have as their underlying causes inborn anomalies of the germ-plasm which may have been completely latent in earlier life, or may have shown a warning sign, such as blue sclerotics or the digital deformity of myositis ossificans. Nevertheless, they do not conform closely to the conception of diathesis; they are, on the surface, too inevitable.

In the abiotrophies the tissue defects are the most potent causative factors, and the influence of external exciting causes is minimal. It may be that, as Rosenbach suggested, the vitality of the tissues involved is so low that even normal function overtries it. Such evidence as we have, up to now, as to the condition of the affected cells is almost wholly histological, and we do not know whether the trouble be due to some defect in the constitution of the cells themselves or to some abnormal substance in solution in the body fluids. The former appears the more probable explanation, and we possess one clue which may prove to be important—namely, the brittleness of the red corpuscles in congenital hæmolytic jaundice, and their peculiarities of size and form. These are clearly independent of the medium in which they are suspended, and as far as I am aware, it has not been ascertained whether normal red corpuscles are rendered brittle by contact with the serum of a subject of the disease.

On the other hand, it can be established beyond doubt that, in individuals whose metabolic processes are in some way deranged, the presence in the tissues of an abnormal product of metabolism, or of a normal product in undue quantity, may give rise, under adequate provocation, to morbid effects of greater or less gravity. Here, indeed, is realised the underlying idea of most of the earlier conceptions of diathesis or predisposition; as of an intermediate state which, in the words of Germain Sée,[23] "n'est pas encore la maladie—mais qui n'est déjà plus la santé parfaite," and which Jonathan Hutchinson described as "a condition of prolonged peculiarity of health, giving proclivity to definite forms of disease."

In a lecture delivered as long ago as in the year 1855, W. H. Walshe[24] spoke of diathetic diseases as "apparently generated and sustained by an intrinsic blood poison, resulting from some perversion of the nutritive processes of the individual, a suggestion much in advance of the time at which it was uttered; but in the list of diathetic diseases which followed there were no signs of such prescience. In it were included maladies of almost every class.

If we are prepared to look upon the life of animals and plants as a complex of physical and chemical processes, and to recognise the importance of chemical factors in evolution, as was emphasised by Leathes in a recent address, we are bound to admit that the morbid predispositions of human beings depend, to a large extent, upon their chemical build and chemical life. Nor can we escape the conclusion that seeing that differences can be shown to exist, some obvious and some subtle, in the metabolic processes of creatures of different genera and species, there must be differences of like kind, but of less degree, between the individual members of a species.

We should expect chemical mutations to be less obvious than those of form, but it is probable that they are not less numerous. A systematic search for such mutations would involve elaborate metabolic studies of large numbers of individuals, and much of the labour expended would probably be in vain. But just as one who carried out a systematic scrutiny of currency notes would not fail to pick out a note with a wrong watermark, or one printed upon discoloured paper, so some metabolic anomalies attract attention because they give some conspicuous sign, or, as in the case of pentosuria, are detected by response to some routine test in general use.

Some of the more conspicuous anomalies give rise to serious troubles sooner or later; and by the study of the more obvious errors of metabolism we gain insight into the possible effects of such deviations from the specific type; and by learning how a lesion or syndrome is produced in the few cases we may gain a notion of the mode of its production in the many. In most instances the victims of metabolic anomalies show no morbid signs until the appropriate exciting cause comes into play, just as a sufferer from Raynaud's disease may spend his life in the tropics unaware of his infirmity, which is revealed when he comes to a cold climate.

Among the diathetic diseases enumerated by Walshe cystinuria has a place. This anomaly has been known for half a century previously as a cause of calculus formation. We now know that cystin is one of the most important of the fractions of which protein molecules are built up, the bearer of the sulphur which they contain. Cystinuria is the sign of an error of protein metabolism in which other protein fractions are involved. A subject of this anomaly may live his life in ignorance of his infirmity, whereas a brother, similarly affected, may suffer almost continuously from calculous troubles, often in an aggravated form. Cystin, in virtue of its insolubility in acid urine, is eminently suited to form calculi, and given the necessary exciting cause, probably an infection of the urinary tract, the cystinuric will form stones. The presence of the crystalline deposit may favour the infection of the tract. Apart from this the anomaly has no obvious ill-effects, even when tyrosin, leucin, cadaverin, and putrescin are being excreted together with cystin.

Gout may be regarded as a diathetic disease par excellence, and it has found a place in all lists of such maladies. That it is hereditary has been known from ancient times, and it manifests itself by recurrent

roxysms, separated by intervals of apparent alth. Like cystinuria, gout may be described as a agedy of insolubility; for it is hard to doubt that e tendency of uric acid to be deposited in the ssues as crystalline sodium urate is the leading ctor in the attacks, as witness the tophi so often en in the ears of its victims, and not seldom in and ound their joints. Many factors contribute to ovoke the attacks, such as seasonal influences, liscretions of diet, overstrain, and injury; and the its of the lesions are determined by traumata ent or remote, and even the special liability of the e-joint is probably due to the repeated mechanical ults endured by the only joint upon which we ss in walking. Gout in a hemiplegic patient acks the joints of the paralysed limbs. In some mbers of gouty families very trifling provocation fices to determine an attack, whereas in the mune a flagrant combination of all the exciting luences are powerless to do so.

The pathology of gout is hardly less obscure to-day n when my father found uric acid in the blood of ity subjects 80 years ago. The majority of those o have worked at the subject hold that the under- g factor is an error of purin metabolism, but as the nature of that error they do not agree. Others l maintain that the primary fault is one of retion of uric acid, due to a defect of renal function. analogy the former explanation appears the more bable, but the evidence for renal origin cannot be nissed lightly. It is a well-known fact that the retion of endogenous uric acid, which is inde- dent of diet, varies rather widely in different nan individuals, and a systematic study of the unts of uric acid in the blood and urine of dren of gouty parents should yield interesting ults. This much is certain, that in gout we are fronted with a highly hereditary malady, presum- y based upon an inborn defect, the manifestations hich seldom appear before middle life.

he familiar osteo-arthritis of later life, which ears as the hip-joint disease of elderly people, erden's nodes and the like, is often ascribed to an ry, or severe wear and tear, and an infection be a contributory factor. In the great majority stances there is no obvious underlying cause, but few instances at least the primary cause is an r of metabolism. Alcaptonuria, the rare hereditary r of protein metabolism which is characterised by presence in the urine of an aromatic acid, homo- isic acid, derived from tyrosin and phenylalanin, long thought to entail no evil effects. But we know that at the age of about 30 years the ects of this anomaly show signs of blackening of lages, and later in life they develop osteo- ritis. In these cases the articular disease shows liar features, such as a pronounced stoop due to ication of the spine and a characteristic gait, h are sufficient in themselves to rule out a chance ciation, and in some families, notably one which er has described, the joint trouble picked out alcaptonuric members, whereas the normal hers and sisters escaped. Here we have still conclusive evidence that the morbid effects of nborn error of metabolism may be very long poned.

take one more example. It is a familiar fact individuals of the human race differ widely in tivity to light and other forms of radiant energy, hat there have been evolved protective measures, as pigmentation, and to a less extent, hirsuties. reas the available evidence shows that exposure ght is usually beneficial, we also know that in in cases exposure to light gives rise to diseases e skin, and even of the deeper structures also. s been shown, moreover, that the introduction the tissues of certain pigments, for the most fluorescent substances, of which eosin is one, render an individual acutely sensitive to light. pigments of the porphyrin group possess, for the part, this power, and such a pigment is present, in traces, in the tissues and excreta of normal men. It is a tempting hypothesis that these traces may play an important part in connexion with the physiological actions of light and of ultra-violet rays.

In rare individuals porphyrins are present in excess, and are excreted in abundance in the dark red urine and in the fæces. The bones become deeply stained, and the teeth also in some cases. Such hæmato-porphyria is congenital and recessive. Its victims are pitifully hypersensitive to light. When exposed to bright light they develop a skin eruption known as hydroa vacciniforme, which produces deep scars, and brings about grave mutilation by destroying the tissues, blindness, and even trouble in deeper structures such as rigidity of the digits and deformity of the hands. All these troubles may be avoided by protecting the patient from light.

It seems certain, on the other hand, that hæmato-porphyria congenita is not the only cause of hydroa vacciniforme, nor even its commonest cause; but it is significant that when cases of that affection are collated, the sex-incidence and mode of heredity of the whole series closely resemble those of the porphyrinuric cases alone. It seems probable that in the cases without porphyrinuria the underlying cause is some other metabolic derangement, or even several such, and that in the sensitivity of hæmato-porphyrics to light we have a special illustration of a law of wide application.

In the conditions which have been referred to there is present in the tissues some unusual chemical product, or a normal metabolic product in excessive dose, in consequence of an abnormal arrest of metabolism, which arrest is probably due to lack of some individual enzyme, the task of which remains undone. But just as lack of a vitamin or a hormone may bring about untoward results, so it would appear that the mere absence of an enzyme may in itself be the underlying cause of morbid developments. Thus albinism probably results from the lack of the enzyme which brings about the formation of melanin; but a much more striking example is afforded by that grave and remarkable disease, hæmophilia, a typical sex-linked recessive, the essential cause of which appears to be absence of a coagulative factor. Hurst has suggested that constitutional achlorhydria, which is met with in young children, tends to run in families, and was detected by Bennett and Ryle in four out of 100 healthy students, is due to an inborn error of secretion, and I have little doubt that, as time passes, the part played by hereditary chemical defects in providing the substructure of disease will prove to be much greater than, in the present state of our knowledge, it can be shown to be. On the other hand, we need to beware lest such phrases as "error of metabolism," used without real justification, may become convenient cloaks for our ignorance.

The further we pursue the study of diathesis the more clearly do we realise its many-sidedness. New facets present themselves at every step. Of some of these the passage of time forbids me to say anything, and to others I can merely allude. For example, it is by no means easy to draw a dividing line between diathesis and idiosyncrasy. Into the category of idiosyncrasy falls the remarkable hypersensitiveness to particular proteins which is so closely linked up with the causation of urticaria, the erythemata, intermittent hydrarthrosis, and some forms of asthma.

Again, I have said little of the converse of diathesis, the benign mutations which favour the individual in the struggle for existence. Difficult as it is to detect an error of the body chemistry by its evil effects, which may be so long postponed, it must needs be more difficult to detect those which are harmless or have only good effects. Yet we can see how such favourable mutations have been utilised in the building up of the defensive mechanisms which are ready to be brought into play to counteract a poison introduced

and which confer upon some individuals and on the members of certain families an inborn immunity, partial or complete, from various infectious maladies. Nor have I said anything of what Draper calls the psychological panel, the profound influences exerted by and through the nervous system in connexion with what are spoken of as functional maladies, and the instability of the nervous system which is not uncommonly an inherited quality.

Indeed, this lecture of mine is like a jig-saw puzzle, some bits of which have been pieced together, into groups which foreshadow the picture of which they form parts. But if it shall have served to throw any light upon the factors which underlie the conception of diathesis, or shall help to reawaken interest in the constitutional factors which play so important a part in the incidence and shaping of disease, it will have attained its aim. Nor has it been wholly divorced from the practical side of medicine as the healing art; for it stands to reason that the better we understand the susceptibilities of our patients, the better we shall help to stay, what Francis Galton[25] called, "the steady and pitiless march of the hidden weaknesses in our constitutions through illness to death."

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CREWE MEMORIAL HOSPITAL.—This hospital is being extended at a cost of £15,000. At the laying of the foundation-stone last week over £8000 was subscribed, and a cheque for £2500 has been received from the London, Midland and Scottish Railway.

UNIVERSITY OF MANCHESTER.—It is announced that the late Prof. Alfred Mica-Smith has left £1500 to found a Dr. Robert Angus Smith scholarship in sanitary science in memory of his uncle. The late Miss Eliza Marple Holt left £600 for the foundation of a scholarship to promote the training of women in medical knowledge, and also left £2385 to the University. A house behind the Public Health Laboratory in York-place has been purchased for this department, which will in future be known as the Department of Bacteriology and Preventive Medicine. The Department of Pathology will be removed from the Medical School and brought into closer touch with the allied Department of Bacteriology. This will leave more room in the Medical School for the extension of other departments. On the recommendation of the Senate and Council it has been decided to confer the title of Emeritus Professor on Prof. R. B. Wild on his retirement from the Leech Chair of Materia Medica and Therapeutics.

SOME OBSERVATIONS ON

LIGHT TREATMENT AT THE LONDO HOSPITAL.

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THE Light Department of the London Hospita in two sections: (1) for local treatment; (2) general or light bath treatment. The department the local application of concentrated actinic li originally opened on May 1st, 1900, was extende 1903, and is situated on the second floor of the patient block in a spacious room. The apparatu this section consists of:—

(*a*) Two large carbon-arc lamps (Finsen type) wor at 70 ampères, and arranged to treat four pati simultaneously at each lamp.

(*b*) Four smaller carbon-arc lamps (Finsen-Reyn t working at 25 amperes, each lamp arranged to treat patient.

(*c*) Water cooled mercury-vapour lamps (Kromayer ty

The department for general or light bath treatm is on the roof of the out-patient block, and cons of five rooms with bathroom and lavatory accomm tion. Lamps are installed in four of the five rooms, the fifth apartment is for the use of the nurses and c tains steriliser and examining couch. These ro have been erected as a temporary building to m the urgent need for such a department. The electr equipment of the rooms is as follows:—

Room 1.—Open arc lamp (Finsen type) giving an int white light with a short arc ⅜ in. long. Current requ is 50 ampères, 60 to 70 volts. Direct current is obta from a motor generator, which also supplies the Fi lamps in the light treatment department. The lam suspended on counter-balance-weight gear.

Room 2.—Two open arc lamps (Westminster) workin series off supply company's mains, 240 volts direct consuming 25 ampères each. These lamps give a r violet ray than the Finsen lamps, as carbons burn appr mately 1½ in. apart. They are suspended on counter-bala weight gear, and the whole mounted on a rail to give zontal movement. The arc lamps in Rooms 1 and 2 fitted with metal tray underneath to receive falling ash carbons.

Room 3.—Mercury-vapour lamp (Jessionek, supplie General Radiological Company) fitted on a floor stan complete for attaching to ordinary 240 volts plug in r Consumption 3½ ampères at 240 volts. Mercury-va lamp as above, supplied by Messrs. Westinghouse, Co Hewitt Co.

Room 4.—One long flame Westminster lamp, as in Roo but arranged to be much nearer the floor for the treatm of small children.

All treatment rooms and the nurses' room provided with a system of ozonisers (Quain). room has two hanging pendants, carrying five qu tube generators about 2 in. diameter and a 8 in. long. A high-tension transformer in each r supplies current for these and is controlled b variable resistance switch. The alternating cur to these transformers is supplied by a small ro converter of 240 volts direct current. An ele clock (Synchronome Co.) is provided in each r to show uniform time and facilitate the expo required. All rooms, &c., are heated with hot-w radiators. High-wheeled couches are provided recumbent cases, and the chairs for patients h been specially made with backs arranged with least obstruction possible to the rays.

Illuminants in Use.

No consideration whatever is given to any g enclosed light. Glass is almost impermeable ultra-violet light.

1. Carbon Arcs.—Small or large carbon-pencil are equally valuable if the law in inverse squar

rne in mind—i.e., a small group or single patient aced before a 25 ampère lamp, or ten children or ght adults around a 75 ampère lamp would give ually good results. Such lamps are mechanically pendable owing to their long use by electrical gineers as public illuminants. The only difficulty the regular approximation of the carbon pencils they burn away, and this is efficiently met with any type designed for continuous use. An arc at will burn four hours without replacement of rbons is all that is required. The group treatment patients round an arc lamp is attended by an treme degree of heat and stuffiness which can be ercome by efficient ventilation, or when this impossible, by the installation of an efficient onising apparatus. For convenience of electrical pply two 24 ampère lamps can be used gether as a unit rather than one lamp of higher ipèrage.

2. *Mercury-vapour lamps* have certain advantages. ey are portable and the current required may obtained from ordinary lighting circuits. No chanical attention is necessary during the ordinary of the "burner," which is approximately 1000 urs. It is fragile, replacement is expensive, large-up treatment is impracticable, and the best ults are obtained by treating patients singly, at most in pairs. Great care is needed for the tection of the eyes of both patient and attendant painful conjunctivitis may follow a very short posure. Children particularly require constant tching under this light as they are apt to interfere h the apparatus and get too near the source of it. Accurate timing, which is most important, btained by setting the hands of a cardboard clock e to the time of the termination of the dose, and always having a dependable clock facing the ient who is told that when his time arrives he st leave the lamp. This precaution is taken in e the nurse should by any accident be prevented n giving the necessary warning. We prefer this hod to the installation of an automatic cut-out ked by a clock, since the frequent interruption restarting of the lamp at intervals that may be short as two minutes throws an undue strain on construction, and time is lost in waiting for the ndescent vapour to acquire its full actinic value ach restarting. The reaction from an absolutely lamp is more intense than from one which has n in continuous use for 24 hours, but after that ainly up to 600 hours the reaction has appeared is remarkably constant. When a burner grows the quartz becomes opaque and longer exposures tolerated. When replacing an old burner, there-, it is important to retime the exposures as from start.

Clinical Dosage.

enerally speaking, the initial dose which can be ne with comfort should cause no more than evident reddening of the skin and a conscious ling which is not unpleasant. Three years' erience of initial doses has shown no ill-effects exposures of half an hour to the carbon-arc or of two minutes to a 6-in. mercury-vapour er. With either of these initial doses desquama- in the form of large dry flakes may be wide-ad, or may not occur at all. We have rarely blisters form, however intense the reaction in this timing or however widespread the desqua-ion may have been. From our observation more re reactions are given by the skin of brunettes, also develop far more intense pigmentation as goes on. We meet with blondes whose reaction, rst acute, after many doses is often imperceptible he improvement in their physical state continues. ial dose on a limited area of skin has been suggested a method of determining the dosage for new ents. We have not yet found any disadvantage radually ascending doses from the initial exposure h we have ascertained to be safe—e.g., half an of the carbon arc or two minutes of the mercury our.

The carbon-arc exposure is increased by half an hour at a time to a maximum of four hours per diem. If at any time the skin is noted as being erythematous, with or without pigmentation, the dosage is not increased. In th mercury-vapour cases the initial two minutes to each side of the body is increased weekly by a minute to either side, to a maximum of 20 minutes to each side.

Intermissions due to illness, holidays, menstruation, or other reasons, call for watchfulness. An interval of four days or less calls for no alteration in the time of exposure. A month's rest certainly means a resumption of the initial dosage. After a fortnight's holiday the maximum dose previously reached should be halved, or painful severe erythemata may occur. In practice we find it unnecessary to fix a different initial exposure for children and adults. For rickety babies we have not exceeded a maximum exposure of two and a half hours to the carbon arc. The standard distance of the patient's exposed skin from the source of light is assumed in all cases to be 3 feet, and so far we have applied this system of dosage to every type of disease, but further experience may lead to modifications. It is best to keep the patient still throughout the treatment, and no special advantage is gained by allowing him to walk about. Areas of skin reacting from any local treatment, or ulcerated, are carefully protected by a dressing while the rest of the skin is exposed. If this is not done the patient will complain of pain and discomfort, which is not compensated by any appreciable therapeutic benefit. Protection of the eyes is necessary whenever the front of the body is under treatment. Smoked glasses in practice are always discarded for brown paper masks. Small children wear closely fitting leather and elastic eye-shades in which deep-tinted glasses are inset.

Selection of Patients.

(*a*) *Organisation.*—The choice of patients to be treated must naturally be left to the discretion of the medical officer in charge of the clinic. In practice we find it impossible to take on cases, however suitable, unless and until arrangements have been made to ensure the regularity and continuity of their treatment.

(*b*) *Provision for Regular Attendance.*—The majority of patients needing light treatment will be unable to pay for it during the necessarily long period. Financial aid is necessary if the clinic is to work successfully, and continuity of attendance is essential. In all these matters coöperation with the local authority is of the greatest assistance. In some instances all that is necessary is the provision of a railway season ticket, in others a lodging allowance. The provision of hostels in connexion with clinics attached to general hospitals is now being considered. Attendance of patients can be encouraged by health visitors and by school nurses. Early cases are picked out for treatment by school medical officers, others by tuberculosis officers and infant welfare clinics, while the majority have been and always will be sent for treatment by the general practitioner.

(*c*) Cases of *pulmonary and laryngeal tuberculosis* should be treated only in institutions devoted to this special work, partly because they are contagious and partly because they need special dietary and hygienic care and expert clinical supervision. No surgical case should be admitted unless referred by a competent surgical authority. We have had sent to us cases of spinal caries still needing orthopædic support and cases of rickets that required operative or instrumental correction of deformity. Blood diseases also must be watched by a hæmatologist.

(*d*) *Education.*—The daily treatment must continue for a long time and education must not be forgotten. Illiteracy and indiscipline are bound to occur in children lodged for long periods away from home. Thanks to the keenness of the London educational authorities all our non-contagious children of school age may now attend school for half the day. Arrangements, however, have still to be made for the education of children coming from a distance and living in approved lodgings in the neighbourhood of the clinic.

(*e*) *Reports.*—To secure the willing coöperation of boards of guardians it is necessary to make careful clinical reports which we find it advisable to supplement by photographs. It is obviously to the advantage of the contributing authority to be fully informed of the attendance and progress of cases for which they have assumed responsibility.

(*f*) We never allow ourselves to forget that diseases must be attacked from all sides at once. Rickets calls for dietetic as well as light treatment; lupus needs local as well as general therapy; tuberculous adenitis may need tuberculin injections; surgical tuberculosis may require aspiration or operative measures.

Lupus Vulgaris.

The treatment of lupus vulgaris by the local application of concentrated light (Finsen treatment) has been carried on at the London Hospital for 26 years, and during that period 2663 new cases have been dealt with. From time to time reports on the work have been published,[1] [2] and it will be unnecessary here to give more than a brief summary of the experience gained in the clinic. The cases may be divided into four groups:—

(*a*) Cases in which there has been complete cure with no relapse. A large number of these have been examined periodically, and we are in touch with many that have been well from 10 to 25 years.

(*b*) Cases in which the disease disappeared under treatment, but in which small recurrences have appeared from time to time. In such cases renewed treatment cleared away the lesions.

(*c*) Cases in which the disease improved under treatment, but in which we have never been able to remove all the lesions.

(*d*) A small group of hopeless cases which were not influenced materially by any form of treatment.

In addition to these groups there are patients who, for domestic, financial, or other reasons, have been obliged to give up attending for treatment. Since the first experimental period, in which nothing was used except the light treatment, other therapeutic measures have not been neglected. Superficially ulcerated lesions have received occasional short exposures to X rays. Other measures, such as the application of antiseptics and keratolytic remedies for warty areas, have prepared surfaces for the Finsen treatment. Lesions in the mucous cavities have been dealt with where accessible by curette, cautery, or caustics. Moreover, in gravely disfigured subjects or in areas where the scar is of little moment, the light treatment has been supplemented by the application of acid nitrate of mercury, creosote, and salicylic acid, pyrogallic acid, &c.

As a result of these local measures 70 per cent. of the patients have been cured, 11 per cent. require occasional treatment, 16 per cent. are classed as "improved" and will probably require treatment from time to time all their lives, and 3 per cent. only remain uninfluenced by treatment. These figures are slightly better than those given by Reyn, of the Finsen Institute at Copenhagen, but the type of lupus seen at the great Danish clinic is more severe than that seen in London.

The causes of failure or imperfect response to the Finsen treatment are:—

(1) *Extent of the Disease.*—Many of the patients did not come to the clinic until the lupus had involved large areas. Extensive cases have taken years to cure, and in some instances the surface affected was so great when the patient was first seen that such a slow measure as local phototherapy could not be considered. Where the disease affected large areas on the trunk and limbs—that is to say, parts where the character of the cicatrix was of little importance—surgical measures and the application of caustics like creosote and salicylic plasters were found preferable to the light treatment. Even in some facial cases where there was already great disfigurement it was thought advisable to prepare the way f phototherapy by the application of strong causti It is encouraging to find that in recent years mo cases of lupus of small areas have been sent to t clinic, especially by school medical officers in lar centres, but we still see distressingly mutilated cas from many provincial areas. Multiple lesions of sm size, occurring after acute specific fevers such measles, do not as a rule present difficulties.

(2) *Rapid Spread.*—A very troublesome group cases is that in which the lupus spreads so rapid that it is impossible to keep pace with it by phot therapy. These patients have a very low resistan to infection. Treated areas may heal readily enou but while one site is being cured adjacent pa become invaded and the disease continues to spre The most unfavourable type is that in which there great thickening of the whole skin. When the fa is involved the lips and cheeks become bloated a purplish-red in colour with a form of lympha infiltration resembling a pseudo-elephantiasis. Su cases are not common, but I have followed seve from their early stages and have found nothi influence them.

(3) *Presence of Lupus of the Mucous Membranes.*—In the first report [1] which dealt with a large accum lation of old cases, the proportion of patients w lupus of the mucous membrane of the nose, buc cavity, and pharynx was 43 per cent. Christians gave the proportion of mucous membrane invasio in the Copenhagen Light Clinic at about the sa date as 80 per cent. Mucous membrane lesions w recognised in just under 30 per cent. of new ca seen at the London Hospital. Up to July, 19 these cases were treated by surgical measures, application of strong iodine, trichloracetic ac lactic acid, &c. Some improvement was found follow Pfannenstiel's method of generating nasc iodine in the nasal cavity. In many instanc however, no cure could be effected as it w impossible to reach the whole of the diseased area.

Influence of Light Bath Treatment in Lupus Vulgar.

The light bath treatment was introduced at London Hospital in July, 1922, as an experimen measure on the lines suggested by Reyn. At fi a 25 ampère carbon arc was used and later a la 70 ampère arc with tungsten paste and carbon po was employed. Newer types of carbon-arc a various forms of mercury-vapour lamp were tes and several have been installed.

The first series of patients healed were of resistant type, and light baths were used *without local treatment.* The results were so encouraging th as our resources increased, we combined both lo and general treatment in a large number of cas and found that the efficacy of local treatment w increased by the application of light to the gen body surface. We found (1) that the rapidly extend cases (Type 2) with whose progress we could keep pace by local measures, could be heal and (2) that, as Strandberg was the first to point ou many cases of lupus of the mucous membranes will heal without local treatment. We found, therefo that we had overcome the two chief difficulties wh had previously hampered our work, and thus w able to increase our proportion of cures by 20 cent. We agree with Reyn that a combination local and general light therapy carried out wh proper care in the details of the technique will ra the cures in lupus vulgaris to 90 per cent.

There will always be patients who relapse a months after the treatment has been suspended a they have returned to their normal environme Nothing at present known will permanently ra their resisting power to the *Bacillus tuberculo*. It seems a good practice to give them a prophyla course of light baths every year. There is also a sm percentage of cases that we cannot influence, pa cularly what may be called the "facial lymphati type. Light baths have little or no effect.

[1] Seven Years' Experience of the Finsen Treatment (J. H. S.), THE LANCET, 1908, i., 713.

[2] Finsen Light Treatment at the London Hospital, 1900–1913 (J. H. S.), THE LANCET, 1913, i., 1655.

[3] Zeitschrift f. Laryngologie, 1920, Band x.

Results and Conclusions.

Two hundred and forty-nine cases of lupus vulgaris ave been treated by light baths in addition to local eatment; 16 of them have given up attending for arious reasons, financial or domestic. In one case eatment was abandoned because the patient, who as supposed to have healed fibroid phthisis, had a vere hæmoptysis. One patient, an adult male, eveloped encephalitis lethargica. Four patients died. ne committed suicide after she had left the hospital ; cured ; three died from meningitis.

One was a young girl in whom nasal lupus had been parently cured, and who was suspended from light treatent; another, a woman of middle age, who had extensive eas of dry lupus, was admitted to a Poor-law hospital, d at the autopsy calcareous nodules of stony hardness re found at the apices of both lungs and extensive recent berculous meningitis. The third was a woman, also th extensive lupus of the dry variety of many years' nding. In her case there was no autopsy.

Possibly in all three the meningitis may have been berculous, but in one instance only we have post-ortem information. All these patients had had long riods of light bath therapy.

Reviewing the cases as a whole, the following atements (most of which are generally accepted) pear justified :—

. The results are independent of (*a*) the cutaneous reaction, the extent and degree of pigmentation.

2. Children as a rule improve more rapidly than adults.

3. Increase in the body-weight is small. A rapid decline weight should lead to immediate suspension of light bath atment and a search for active pulmonary invasion.

4. Estimates of temperature and pulse-rates are of no ticular value, but we prefer not to treat pyrexial cases.

5) The very slight leucocytosis observed in early cases , likewise, no clinical importance.

6. There is no doubt of the marked improvement in the neral health of the patients and in their mental outlook. is is independent of any change in the basal metabolism, shown by the London Hospital Clinic.

7. In 26 years' experience I have never seen carcinoma velop in any case of lupus which responded to light rapy. Many of the patients had been under continuous atment by concentration light for years.

In confirmation of these general statements I pend details of cases.

Phthisis Developed and Revealed by Light.

The following three cases show the development of : hæmoptysis ; (2) hilum phthisis ; (3) night eats while under light bath treatment.

ASE 1. *Hæmoptysis.*—T. W., aged 50. Elbow trouble owed injury two years ago. T.B. found in aspirated fluid. ration and vaccine in hospital, 1923. Weak right arm forearm ; sinus, crusts, and scars about ankylosed right w. Several X ray plates not diagnostic. T.B. glands t side of neck 20 years ago. Treated at London Hospital 3rd, 1925, light baths started ; arc light 30 minutes y. 11th : Severe erythema of chest. 18th : Cough, not feel well ; arc light reduced to a quarter of an hour. ch 18th : Hæmoptysis at home ; no further light.

ASE 2. *Hilum Phthisis with Pyrexia.*—L. H., aged 8. admitted a patient Sept. 18th, 1923, with numerous ted multiple tuberculides scattered on the forearm and Microscopically, these lesions were granulomata with inucleate giant cells. The child had a barrel-shaped t, and Dr. Charles Miller, who examined her, considered e was presumptive clinical evidence of enlarged hilum ds. Radiograph showed that the glands around the were excessive for a child of 8. Wassermann reaction tive ; there were no blood abnormalities. Patient was itted to mercury-vapour light baths after her temperature, on observation in the ward, had been normal for a ight. The light doses were gradually increased to a ter of an hour all told—i.e., a quarter of an hour of to each side daily. Her condition became torpid, st typhoidal, and the light baths were suspended on 12th as being definitely harmful. She then immediately tened, but a few new experimental exposures threatened h to make her ill and she was removed by her friends. heard later that she developed pseudo-elephantiasis e leg with tuberculous ulcers.

SE 3.—F. C., aged 31, has had lupus of chin and upper since 1921. July 14th, 1925, light baths commenced. 23rd : Felt very tired, diminished appetite, night ts, loss of voice and weight. Transferred to general ician. Wassermann reaction negative. Numerous T.B. utum. Light bath treatment suspended.

By the regulations laid down by the hospital authorities all the lupus patients who attend the London Hospital light clinic are out-patients. The majority of them live in their own homes or with friends, and their housing, feeding, and general hygiene are, therefore, those of their class. In certain cases where it appears that the food is insufficient, the sister in charge has power to draw upon a small private fund by which children who need them have an allowance of milk and other necessities. Some patients who live at a distance have their fares paid by the local tuberculosis authorities, season tickets being provided in suitable cases. A number of children who come from a distance are housed with respectable women in the neighbourhood, the expense being borne in a few instances by the relatives, but in most by the local authorities. By arrangements with the guardians of neighbouring districts some of the children from provincial areas are lodged in local Poor-law hospitals and attend daily.

It is obvious that the conditions under which these patients live are not ideal and are not to be compared with those of patients who are housed in institutions like Alton and Carshalton. In fact, we are dealing with our cases in what may be considered their normal environment. No one who has any experience of what this environment means can consider the conditions satisfactory, but it would be impossible to alter them except at prohibitive cost. The question of building for our patients one or more hostels where conditions of life could be properly supervised has been raised on several occasions, but the financial position of the hospital does not allow it. The ready coöperation of the London County Council is shown by their spontaneous establishment of a lupus school for boys and girls attending the London Hospital, and this has proved of great assistance.

We have always held that this form of treatment should be carried out in country centres, in clean air and wholesome surroundings, with good food and provision for the education of children. This, however, would entail a large capital outlay and heavy maintenance charges. In spite of all the drawbacks incidental to our out-patient clinic we obtain results which are far better than those obtained before phototherapy was introduced, and in this respect I (J. H. S.) can speak with some certainty, as I had considerable experience of the older measures as applied by surgeons of repute.

THE RESULTS OF
ULTRA-VIOLET LIGHT TREATMENT.

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THE record of a complete year's work at the Artificial Sunlight Clinic at the Carnegie Institute is now available, and the results can be considered in some detail. The patients are chiefly children under 5 years of age, but a few mothers also receive treatment. Although so much has been written and said with regard to ultra-violet light therapy, the recorded results of special clinics are still few in number, and are complicated by the combination of this treatment with other forms of therapy. The clinic at the Carnegie Institute has been run on the simplest lines and, beyond advice on diet and hygiene, nothing has been done to change the ordinary factors of the child's life. No extra food has been given and cod-liver oil has not been prescribed, though it has not been stopped in the few cases where it was already being administered.

The two lamps are K.B.B. mercury-vapour lamp, the large 440-volt lamp, and the small 220-volt lamp. Most of the work has been done with the large one, which has been used for 439 hours, against 107 hours for the small lamp. The former costs 1·1*d.* per hour and the latter 0·6*d.* per hour for

electricity, but shorter treatments are required with the large lamp. The strength of the lamps in ultra-violet radiations has been estimated regularly, and skin tests have been done in every case. On these factors the dosage has been estimated, and has varied from 3 to 15 minutes per application, given twice weekly.

Rickets.

The value of ultra-violet light therapy in rickets is now generally realised; its speed and simplicity make it invaluable. The difficulty is to secure regular attendance at an out-patient clinic. To illustrate this, it may be mentioned that out of 12 patients in whom rickets was shown by X ray photographs, and whose parents promised regular attendance, not a single one attended. The procedure in rickets is as follows. An X ray photograph of the wrist is taken, and later the child is seen by me at a special clinic where a complete physical examination is made. If the case is suitable and if the mother promises regular attendance, the child is ordered light treatment, the exact dose being prescribed. After about 12 treatments another X ray photograph is taken, and I again see the child, and prescribe further treatment as required. Twelve treatments constitute a course, but in practice 8 to 14 may be given before the second radiograph is taken, the number depending mainly on possible attendances.

For purposes of discussion cases may be placed in three groups :—

(*a*) Completed cases. Rickets shown by X ray, with satisfactory recovery	42
(*b*) Incomplete cases. Rickets shown by X ray, with failure to attend till discharge	77
(*c*) Clinical rickets. Rickets not shown by X ray or no X ray taken	17
Total	136

It may be considered that (*c*) should not be included, but these cases showed definite clinical symptoms—bending, enlarged epiphyses, lack of muscle tone, &c.—and there can be little reasonable doubt that they were cases of rickets. Those who now refuse to accept a case as rickets without an X ray diagnosis are, in my opinion, neglecting some obvious facts. There is definitely a stage in healing rickets where the bone becomes "normal" in X ray photographs, although the child is still suffering from the disease, and may not walk for some weeks longer, and may continue to show other symptoms, such as anæmia, which definitely justify the contention that there has not been a return to normal. Children benefit by treatment at this stage, and should be treated if first seen then. Probably every case of rickets will give an X ray picture at some period of its history, though there is no definite proof for or against this. It is conceivable that the changes usually seen in radiographs are gross ones which are not necessarily present in every case of a generalised metabolic disturbance, the incidence of which may fall with varying degrees of severity on different tissues.

The attendances of the completed cases, Group A, were as follows :—

Cases.	Attendances.	Cases.	Attendances.
16	10–20	4	40–50
15	20–30	2	50–60
5	30–40		

Many cases attended after the radiograph showed normal bones, as the muscle tone and general health remained defective.

The order in which improvement appears normally to occur is as follows :—

(*a*) Improvement in disposition. The child is more cheerful and contented, and sleeps and eats better. This change is often very marked, and induces the mothers to continue attending.

(*b*) Improvement in the radiograph picture, and eruption of teeth where there is delayed dentition.

(*c*) Improvement in muscle tone.

(*d*) Improvement in anæmia when present. This is always delayed. The hæmoglobin percentage remains low for some time, and rises slowly. The number of erythrocytes increases earlier than the rise in hæmoglobin percentage.

Deformities naturally tend to improve very slowly. Flat-foot is often troublesome. Many of the children were sent to the remedial exercise clinic when the mothers could be induced to attend.

Analysing all the cases, it was found that 62 had made a series of continuous attendances till the bones became normal.

Cases.	Attendances.	Courses.
32	8–14	1
27	14–28	2
3	48–49	4

It will be seen that in the large majority one to two courses of treatment suffice to produce a normal radiograph; only the very severe cases require prolonged treatment.

The total attendances for all cases were as follows :—

Group.	Cases.	Attendances.	Average attendance.
A	42	1021	24
B	77	1088	14
C	17	197	12

Ætiology.

An endeavour was made to ascertain as far as possible the cause of the condition. The mother was carefully questioned and it became fairly easy to decide the predominating factor, which was generally "bad hygiene," as is seen in the table below. This means insufficient fresh air and light not necessarily bad housing, although this was present in the majority of instances. The important point was that the child was never out of doors much, either because the yard was considered unsuitable or there was no yard, or the mother was careless or unhealthy, or the child was too zealously guarded from the weather owing to some ill-health. "Defective diet" means a diet worse than the average and especially deficient in milk. These cases come from extremely poor families, and the children are fed mainly on bread and margarine. Ill-health certainly plays a part in the causation, often in relation to confinement to the house, but also apparently apart from this, though it is difficult to distinguish cause and effect in every case.

Bad hygiene	35	Ill-health and bad hygiene and diet	1
Bad hygiene and diet ..	38	Doubtful..	
Very defective diet ..	17		
Ill-health	10		
Ill-health and bad hygiene	12		13
Ill-health and bad diet ..	2		

Prophylaxis.

From July an attempt was made to induce mothers with young, healthy infants, living under particularly bad housing conditions, to bring the child for weekly treatment in order to prevent the development of rickets. The children, who were all under 6 months of age, were seen by me and their physical condition noted: none had "clinical" rickets. There was no bending, enlargement of the epiphyses, loss of muscle tone, &c. Pallor was noted in three or four cases only. Forty-six infants were brought up chiefly during the autumn months. After the medical examination an X ray photograph was taken, and in five cases the presence of active rickets was reported—i.e., in 10 per cent. of apparently healthy infants under 6 months, living in bad hygienic conditions and showing no symptom of ill-health beyond pallor. The numbers are small, but they are certainly suggestive. Unfortunately it was impossible to obtain regular attendance; 29 attended less than five times, and only two completed the winter.

The small numbers make it impossible to say whether a weekly treatment with ultra-violet light would be sufficient to prevent rickets under bad hygienic conditions, but my personal impression is that it would, on a fairly satisfactory diet, without cod-liver oil.

Other Conditions.

A complete table of these cases is here given. Classification is difficult, but has been done as carefully as possible. Regular attendance is frequently unobtainable, and this reduces the available number when considering effects. Among the most encoura

results were those obtained in "debility following infectious diseases" and in "catarrhal children." "chronic bronchitis" cases vary; on the whole treatment is worth trying. The "infantile zemas" did well, especially the type affecting flexures as sites of election. The patches were posed for three to six minutes at 18 in., where best results were obtained. The relief from ritus and the rapid drying of "weeping patches" es great relief to the child, but even after clearing the condition tends to recur, and often remains tionary in the dry stage for some time. No local atment, except boro-calamine lotion, was used the same time. These impressions are gained not y from the tabulated cases, but from those more ently treated. There were only two cases of erculous peritonitis, but both these did very well. general debility group is a very large one. The jority were children from bad homes, badly cared and their attendance was poor. They form an atisfactory section, and have been placed under subgroup "mismanagement." The others in group did much as one would expect. The tarrhal" cases, including enlarged gland cases, roved markedly. The "nervous child" type did benefit at all. An interesting subgroup were the children with "very poor muscle tone." They no definite symptoms of rickets apart from this the radiograph showed "normal bones," but r rapid and invariable improvement with ultra- et light suggests a relationship to rickets. Some he worst cases were unable to sit up or stand.

nother series of some importance was the ctation" group. Nine mothers attending the st-feeding clinic, who had deficient milk, were n ultra-violet light treatment, although the y was sucking well. These women had failed improve with ordinary advice as to diet and agement. The milk did not improve, although majority stated that they felt better in health.

Conclusion.

f the value of ultra-violet light treatment for ts there can be no question; improvement be obtained rapidly and surely in all cases. cases with a strong catarrhal tendency, or lity following infectious diseases, including monia, show marked improvement. It is useful infantile eczemas and in alopecia. The results ng children treated in the observation ward of institute and given light treatment are similar. ted infants suffering from chronic dyspepsia various causes do not, however, benefit to any ed extent. Even in these, however, the use of treatment is valuable in order to prevent the of rickets.

Total Cases other than Rickets.

Children.

Condition.	Number.	Marked improvement.
al debility	86	
Mismanagement	37	5
Tonsils and adenoids	9	5
Chronic diarrhœa and dyspepsia	7	6
Children not out of doors but well cared for	2	2
Enlarged cervical glands	7	7
Bronchitis and catarrh	5	3
Nervous children	4	—
Poor muscle tone	15	10
ty following infectious diseases	15	
ooping-cough	9	6
umonia	4	1
sles	2	1
ic bronchitis	10	3
hal children (without marked lity)	7	4
las	6	3
culous peritonitis	2	2
cases	7	4
Mothers.		
ion cases	9	—
cases	5	2

INDUCTION OF PREMATURE LABOUR

AND ITS JUSTIFICATION.

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THE arguments brought forward against the operation of induction are: (1) the increased risk of sepsis by the introduction of a foreign body into the uterus; (2) that the preliminary interference and period of waiting for labour to begin induces a state of mind in the expectant mother unfavourable to physiological parturition; (3) the risk of a premature infant being born, with a poor expectation of survival; and (4) that the pelvic calibre is not fully exploited.

The first and third points will be examined in this paper. The second is difficult to estimate, and all that can be said in regard to it is that the impression among the medical and midwife staff in charge of our patients is that the mental effect is not appreciably noticeable. The fourth point holds good in a certain proportion of cases, but should become less important with more careful examination and increasing experience in the selection of cases and of the time of induction.

Of the cases subjected to induction of premature labour in the maternity ward at St. Thomas's Hospital in the six years 1920–25, those in which the operation was performed for albuminuria and the toxæmias of pregnancy are put in a group by themselves because their lowered resistance introduces a factor increasing the morbidity-rate and invalidating comparison with the general morbidity-rate. In the first group the indication for terminating the pregnancy was chiefly that of disproportion between the fœtal head and pelvis, but the group contains also a few cases of maternal cardiac disease. In the second group the indication was renal inadequacy or toxæmic symptoms either of serious degree or not yielding to treatment. Induction for placenta prævia falls into another category altogether and is not comparable to the ordinary induction adopted to avoid a difficult and protracted labour. It has, therefore, been excluded from the series.

The Strasbourg standard of morbidity is the one adopted in the ward—i.e., a temperature of 100·4° F. (38° C.) or over for 24 hours. Some of the cases have been subjected to other internal manipulations, such as forceps delivery, internal version, bimanual rotation or introduction of de Ribes's bag, which increase the risk of morbidity, and such measures have been noted whenever possible.

The total number of inductions in the two groups amounts to 146 cases in the six years under review, 102 falling into the first group and 44 into the second. These numbers occurred in a total of 3600 patients admitted to the ward, or a percentage of 4·08 of the whole and 2·8 for the first group alone.

In Table A, among the 102 non-albuminuric cases, there was one death from puerperal insanity, the patient, on the night after her delivery, jumping over the ward balcony; there was no previous rise of temperature or other evidence of complications. Of the three pyrexial cases one had an unexplained pyrexia of 104° F. for 36 hours two days before labour commenced and three days after the bougies were introduced, one had a short pyrexia of two days occurring three days after delivery for no apparent reason, and the third had broncho-pneumonia after four anæsthetics for operative procedures. The morbidity-rate for this group is 3·92 per cent. One patient had hallucinations for three days and then recovered completely; there was no accompanying pyrexia.

There was also a case of subacute mastitis associated with an acute coryza and a temperature of 102° F., 100° for 48 hours arising on the twelfth day of the puerperium.

In Group II., covering those cases of disorders associated with pregnancy that might lower maternal resistance, all save one fell into the category of

albuminuria or toxæmia of pregnancy. The exception was a case of advanced carcinoma of the rectum with secondary peritoneal metastases. Among these there were two deaths, one from uræmia and the other from septicæmia, and three pyrexial cases that recovered; two had pyelitis and the other septicæmia, the latter

TABLE A.

GROUP I.			GROUP II.		
Year.	No.	Morbidity.	Year.	No.	Morbidity.
1920 ..	16	1 (*a*)	1920 ..	6	0
1921 ..	10	0	1921 ..	1	0
1922 ..	12	0	1922 ..	4	1 (*e*)
1923 ..	9	2 (*b*)	1923 ..	14	2 (*f*)
1924 ..	26	0 (*c*)	1924 ..	9	1 (*g*)
1925 ..	29	1 (*d*)	1925 ..	10	1 (*h*)
Total 6 yrs.	102	4	Total 6 yrs.	44	5
Morbidity-rate ..		3·92	Morbidity-rate ..		11·3

(*a*) Subacute mastitis, 36 hrs., T. 102° F. (*b*) (1) Bronchopneumonia; (2) insanity. (*c*) Hallucinations; no pyrexia. (*d*) Pyrexia from ? mild sepsis. (*e*) Pyelitis. (*f*) (1) Uræmia, D.; (2) septicæmia; T. 102° F.; D. (*g*) Septic parotitis. (*h*) Pyelitis.

TABLE B.—*Cases Admitted to Ward in 1924.*

No.	Pyrexia.	Deaths.	Morbidity.
585	34	6	6·8%

being transferred to a fever hospital with mumps. The morbidity-rate in this group is 11·3 per cent. In the two groups together the rate is 7·1 per cent.

The general morbidity-rate for the ward in the year 1924 worked out at 6·8 per cent., so that these figures indicate that the fear of increased risk of sepsis from induction is unfounded, though the number of cases is admittedly too small for dogmatic statement. Of the cases in which labour was induced for disproportion the morbidity was considerably less than the average of all cases in the ward.

Effects on the Child.

In the 102 cases in the first group there were 12 stillbirths, 4 premature, and 8 apparently mature. Of these two were macerated fœtuses. Prolapse of the cord was present in two cases and was treated by the de Ribes's bag in one and internal version in the other; another case was a brow presentation and craniotomy was performed. There was no clear reason why the infants should have died during delivery in the other cases, and we have no explanation to offer for the high stillbirth-rate in this group—more than three times the average. On the other hand, all the premature infants were discharged from the ward in a normal condition, taking the breast well; most of them were of 37 weeks' intra-uterine development or more; a few were 36 weeks; one was 33 weeks and did very well, showing that apart from the increased risk of stillbirth the rearing of the slightly premature child presented no particular difficulty.

Of the 90 infants born alive in Group I. 73 have been "followed up" since leaving the ward, and the mothers of 17 have not replied to letters of inquiry sent to their homes by post. Out of 73 premature infants who left the ward in good health and whose history is known five died in the first year of life: (1) from erysipelas, aged 3 weeks; (2) from renal thrombosis, aged 4 weeks; (3) from marasmus, aged 4 weeks; (4) died at 4 months, cause unknown; and (5) one of twins died at the fifth week, cause unknown. Sixty-eight are now doing well and no difficulty occurred with breast-feeding, except with one at 36 weeks' maturity, which, after being fed by the spoon with expressed milk for one month, eventually took the breast well.

Whether the operation was justified or not can be determined in each case by taking into account the effect of the parturition on mother and child. An attempt has been made to obtain an index of this kind by taking the length of the second stage of labour together with the degree of moulding and extent of the caput succedaneum on the fœtal head. These criteria must be modified by taking into consideration the strength of the pains and the size of the head. Naturally, if the child was stillborn, with intracranial hæmorrhage and gross signs of pressure, the choice of operation or the time at which it was performed was wrong.

Unfortunately the records in our series are not as full as we should have liked, but the following figures show that on an average the labours were not abnormal and that there was an undoubted tendency to induce labour too early or unnecessarily. Of the 102 cases in Group I. 30 labours were over two hours in the second stage and 10 of them over three hours. The forceps was applied, usually for weak pains with the head on the perineum, in 13 cases, and there was one perforation for a brow presentation. In only five cases was excessive moulding of the fœtal head noted.

The method of induction is that of inserting two or three Krause's No. 12 bougies between the membranes and uterine wall, due aseptic precautions having been taken, and the cervix being drawn down to the vulva by ovum forceps and thoroughly cleaned with a 2 per cent. spirit solution of iodine.

The following cases are quoted as examples, the patients having been in the maternity ward for two or more confinements.

CASE 1.—First child (home), 1920. Term. Difficult labour with forceps, R.P. bleeding and stitches. Baby said to be 11½ lb.; did well. Second child (St. Thomas's), 19... Labour induced at 36th week for disproportion. Baby weighed 5 lb. Second stage one hour. No excessive moulding. Puerperium normal. Feeding somewhat difficult for first month; after that easy. Third child (St. Thomas's), 1924. Induction 38th week. Baby 7 lb. 8 oz. Labour easy. No morbidity. Manual removal of placenta. Fourth child (St. Thomas's), 1926. Examined several times before term and breech presentation moved to vertex. After examination under anæsthesia, it was decided to let patient go to term. Labour commenced roughly three weeks before expected time. R.O.A. Second stage one hour two hours. Forceps. Baby born asphyxiated. Large caput; much moulding; died in two hours. P.M., small pallor cerebellar hæmorrhages. Weight 7 lb. 8 oz. No signs of external injury. Delay due to imperfect flexion and œdematous anterior lip of os.

CASE 2.—First child (St. Thomas's), 1914. Term. Forceps. Child lived; had congenital dislocation of right hip. Second child (St. Thomas's), 1921. Induction for disproportion. Patient had right scoliosis of the spine and the diagonal conjugate was 4 inches. Easy labour. Child 6 lb. 8 oz. and mature. Third child (St. Thomas's), 19... Induction at 33rd week for disproportion. Scopolamine narcosis. Baby was a "morphine child," but did very well and weighed 5 lb. 13 oz., and the diameters of the head were about ½ inch below the average.

Case 2 would seem to indicate that there are other factors besides the size of the fœtal head that influence the estimation of disproportion, as the 1923 child was smaller and weighed 9 oz. less than the 1921 child. The decision in our cases has always rested on the fit of the head into the brim of the pelvis as estimated by Munro Kerr's modification of Muller's method, and this may be influenced by the position and flexion of the head to a marked extent.

The majority of multiparæ who had premature labours induced had previously been through one or more difficult labours with forceps deliveries, frequently resulting in stillbirth. The primiparæ are those in whom at the 36th week the fœtal head had not yet sunk into the pelvis. These cases are then submitted to examination under anæsthesia and the head is pushed into the pelvis with one hand while the internal fingers indicate the direction in which the forceps is applied and estimate the descent of the head. If the head cannot be pushed halfway down the back of the pubic symphysis induction is performed. In these cases in which the disproportion seemed marked an easy labour often occurred with no excessive moulding; the tendency is therefore to induce labour too early. The explanation is that, whereas in labour we have a strong steady push lasting over several hours aided helped by moulding, these factors are not present in examination. Thus considerable experience is required to make an accurate decision.

CASE 3.—First child (St. Thomas's), 1920. Induction at term for disproportion. Diagonal conjugate 4 inches. Second stage two hours. Child 7 lb. No morbidity.

nd child (St. Thomas's), 1921. Induction at 38th week disproportion. Second stage under two hours. Child 5 lb.

ASE 4.—First child, 1920. Induction in City of London pital. Reason not given. Child living. Second child Thomas's), 1924. Induction 39th week. Child weighed 3 oz. Easy labour. Third child (St. Thomas's), 1926. gonal conjugate 4¼ inches. Spontaneous delivery after nd stage of four hours at 39th week; child weighing 8 oz. Measurements of head ¼ inch subnormal. iculty due to œdematous lip of cervix.

With the advance of midwifery during the last years the rôle of the physician has undergone a at change. Formerly the medical attendant was uired to show his skill and often his muscle power delivering the child, the relatives and monthly se taking complete charge of the pregnancy, rperium, and rearing. At the present time his es involve a careful supervision of the pregnancy, rder to make the labour proceed with as little rference on his part as possible; also the direction he puerperium and the bringing-up of the child.

The "Trial Trip."

here are two different schools of thought about niparæ with some disproportion of size between fœtal head and pelvic brim. One is that the labour should be used as a "trial trip" in order nd out whether the pelvis will accommodate and smit a fœtus of average size at full term. If it and high forceps or the perforator have to be l, the next pregnancy is watched with greater care induction of premature labour carried out at the t period of gestation.

he other aims at producing a live infant at the first inement by inducing when the head seems to be ost too large to pass through the pelvis. The ent is examined weekly in the manner above ribed and when the fœtal head can only with culty be fixed in the pelvic brim labour is induced. es of the labours are taken, so that when the an presents with a second pregnancy it is known y accurately whether her pelvis will transmit a time fœtus of average size.

here seems to be nothing to commend the first hod, either medically or from the woman's point iew, and the second seems the more rational one. in successful use in the maternity ward at St. nas's Hospital. Each case of induction is ded in the following manner.

SE 1.—Primipara, aged 19. Expected date of delivery 14th, 1926. Extract from antenatal card: "Presentation A. Measurements: Intercristal, 10¼ inches; inter- us, 9¼ inches. Breasts normal. Urine: No albumin gar." Sept. 14th: Fœtal head high above pelvic brim. onal conjugate, 4 inches. 15th: Anæsthetic; diagonal gate confirmed 4 inches; head not made to enter c brim by Munro Kerr's method; induction; bougie quinine. 20th: Labour, first stage, six hours; second , four hours. Child: Large caput succedaneum, much ding; weighed 5 lb. 13 oz.; head passed through brim anterior asynclitism. Puerperium, no morbidity. ution normal. Conclusion: Induction justified.

SE 2.—Primipara, aged 24. Expected date of delivery 5th, 1926; antenatal observations: Presentation A. Measurements: Intercristal, 10½ inches; inter- us, 8½ inches. Sept. 21st: Head high; can be made nter brim with difficulty. 28th: Same remark. : Anæsthetic. Diagonal conjugate, 4½ inches; true gate, 4 inches. Munro Kerr: Head can be pushed y halfway down the back of the symphysis pubes. ction; bougies. Labour commenced in 12 hours and 12 hours. Baby, mature; 19¼ inches long. Measure- of head normal. No excessive moulding; no large . Puerperium and involution normal. Conclusion: an average-sized fœtus induction not required.

the bones of the skull in a premature fœtus do protect the brain from pressure during the second of labour as well as those of a full-time child better when in doubt to induce labour early and avour to shorten this stage and lessen the chances tracranial injury. If the weight of the child is e neighbourhood of 6 lb. at birth there is usually difficulty in rearing it.

m very grateful to Dr. J. S. Fairbairn (St. Thomas's ital) for his kindness and help with this article.

THE "TONSIL" QUESTION.

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SURGEON IN CHARGE OF THE THROAT, NOSE AND EAR DEPARTMENT, QUEEN MARY'S HOSPITAL FOR THE EAST END, ETC.

THE purpose of this contribution is to inquire whether the wholesale removal of tonsils is justifiable.

Under the general term "tonsils" are included the pharyngeal tonsil, usually spoken of as "adenoids," the faucial tonsils, and the lingual tonsil, and the scope of the inquiry is limited to the chronic conditions of those organs described as hypertrophic, septic, infective, &c. There is a common tendency to condemn tonsils simply because they are enlarged, and no less common is the inclination to saddle them with the blame of an obscure toxæmia for which neither the teeth nor the intestines can be held responsible. One is often asked, by anxious yet optimistic parents, "Is it the tonsils?" when they are dissatisfied with the intelligence, the physique, the speech, or even the habits of their progeny. The tonsils are constantly removed on such grounds, the surgeon being warmed by the comforting thought that if the operation does not prove beneficial, it will, at any rate, do no harm. Do we exercise the same care and discrimination before advising the removal of tonsils which we observe when recommending, for example, a radical mastoid operation? Do we go into all the possible reasons why the tonsils are enlarged, or ask ourselves if the cheesy contents of an open crypt are indeed harmful?

A consideration of the position, structure, and function of normal tonsillar tissue will provide food for thought. Briefly, the tonsils are aggregations of lymphoid tissue, covered by the epithelium of the part, penetrated by surface-opening crypts, and situated at the portals of the alimentary and respiratory tracts. They differ from lymphatic glands not only in their superficial position and in the absence of afferent lymph-vessels, but also in the fact that they contribute mucus and a reducing substance to the saliva. The building up of the tonsils coincides significantly with the period of most rapid body growth. The epoch in development in which infections are most dangerous, and before full resistance to their invasion has been attained, is the time when the tonsils reach the acme of their evolution. This accession of lymphoid tissue is very important for two reasons. First, because it reinforces the protective mechanism by increasing the leucocytes; secondly, because it stimulates local growth, for, according to Carrel, the rate of proliferation of epithelium and connective tissue cells is increased by the presence of neighbouring colonies of lymphocytes.

Tonsillar Hypertrophy in Malnutrition.

Tonsillar hypertrophy may therefore, in the early years of life, be entirely protective; it may also be an indication that body growth is not being well catered for, and that it is serving in a compensatory capacity. It is a matter of every-day observation that badly fed children, and those nurtured in unfavourable conditions, more frequently exhibit enlarged tonsils than do those brought up in a better environment. This applies both to rich and poor. Clark found that a high fat and carbohydrate diet increased the size of the lymphoid areas both in the throat and in the intestine. Stucky was impressed with the relation between the hypertrophied tonsils in the children of Kentucky mountaineers and their de-vitaminised diet, and he observed how these children showed no appreciable benefit after operation if they were kept on the same food, but gave a marvellous response to a diet of milk, eggs, butter, and wholemeal. This association of improper diet and hypertrophied tonsils has been noted and inquired into by many other observers, and I have no doubt of its importance. Many children are given too much sugar and highly milled grain; in houses where there was no possible justification for such economy I have seen, again and again, children given for their

mid-day meal potatoes and gravy, followed by milled rice. Wholemeal, whether it be wheat, oats, or rye, green vegetables, raw fruit, fat-soluble A foods (milk, butter, eggs, &c.), and an allowance of meat as a diet would, I am convinced, lead to an enormous shrinkage in the number of hypertrophied tonsils and adenoids.

Whether non-pathological hypertrophy be of protective or developmental significance in a particular case, the error of removing it is evident. Bauner and Orpel state that, of healthy children who were subjected to tonsillectomy, 57 per cent. were in "poorer condition" after the operation. Kaiser, of the Mayo Clinic, found that 22 per cent. of 5000 children who had had no previous glandular mischief had definitely enlarged glands one year after operation, though he does not state whether this was compensatory or due to an infective agent. Sluder and Zahorsky are both of opinion that tonsillectomy in early life induces a predisposition to infections, while J. E. Davis affirms that he has most convincing evidence of the development of atrophy or hypertrophy of the nasopharyngeal mucosa, of atrophic rhinitis, and of otosclerotic degenerations when tonsillar tissue was removed too early. Such changes, indeed, would naturally follow a deprivation like this if Carrel's conclusions are correct.

The Ill-effects of Pathological Tonsils.

A tonsil may be harmful, locally or systemically, on account of its size, or because of its focal infectivity. Among the mechanical effects of hypertrophy are nasal obstruction and all that it entails, facial deformity, otitis media, dyspnœa, maldevelopment of the chest, and defective oxygenation of the blood. The list of results which have been ascribed to an infective focus in tonsillar tissue is colossal in length and catholic in selection. The local disorders for which such infectivity is responsible include recurrent tonsillitis, "relaxed throat" (which I understand to be an œdema of the faucial pillars, uvula, and pharynx), peritonsillitis, purulent and simple rhinitis, sinusitis, retropharyngeal abscess, and inflammatory conditions of the Eustachian tube, middle ear, pharynx, and larynx.

The general effects, which may be looked upon as those of chronic sapræmia or septicæmia, appear to be most commonly directed at the muscles, joints, heart, blood, and alimentary system, though chorea, nephritis, and inflammatory affections of the nose and eyes are almost as frequent. The ductless glands are involved less often, though the part which infected tonsils can play in the causation of toxic goitre is well appreciated. Barnhill states, for example, that 90 per cent. of his goitre cases had diseased tonsils; Crile, Halsted, and Mayo remove the tonsils, if diseased, after operating on the thyroid, while Joseph Beck removes them before the thyroidectomy.

In this connexion it must have occurred to many that the "adenoid facies" was not entirely due to nasal obstruction; the open mouth, short upper lip, and badly developed nose and palate *may* all be consequences, but the vacant look, the weak hair, the suggestion of an insecure union between the head and the spine, and the under-development of the skeleton and the lack of intelligence and power of concentration suggest defective pituitary and thyroid action. This *may* be in relation to infected tonsillar tissue. Citelli has stated that there is an anastomosis between the small veins and capillaries of the nasopharynx and those of the hypophyseal region, and concludes that the pituitary may be infected through this medium. Even without this direct connexion the pituitary may be infected in the same way as the thyroid—viz., through the blood stream—and it is interesting to note that both the pharyngeal tonsil and the pituitary are functioning most actively in early childhood. On the other hand, the deficiency may be quite independent of such relationship.

To determine whether or not the condition of the tonsils is responsible for systemic disease is not such a simple matter as would at first appear. It is as well, in any case giving rise to uncertainty, to ascertain whether the disorder is in fact of the "infective" type or not. A cell count should elucidate this; if there is a chronic infection, the blood examination will show either a lymphocytosis or a leucopenia. The alteration from the normal may not be impressive, and there is a difficulty in determining the latitude the pathologist allows himself in describing variations of cells as "within the normal." If, however, the departure from the usual, no matter how small, is fairly constant on three examinations it will be safe to act on it.

The Implication of the Tonsils.

It has been established that living organisms cannot pass into the substance of the tonsil if the epithelium lining the crypts is intact. The clinical manifestation of ulceration of this protective layer is, I take it, enlargement of the associated cervical glands. Based on this argument many authorities hold that general symptoms can only arise when this ulceration of epithelium has taken place, but, personally, I cannot agree that colonies of bacteria in intact walled crypts are innocuous. If the drainage of the crypt is perfect, then probably no harm will result; crypts, however, by reason of their shape, are not readily drained, particularly if there is associated fibrosis. Other organic chemical substances are readily absorbed through the mucosa of the upper respiratory tract; why not toxins?

While a rapid inspection of the fauces with a tongue depressor may be sufficient to note superficial appearances, such a means of examination is generally inadequate. It is necessary to look at the adenoids with a post-nasal mirror or nasopharyngoscope, ascertaining the size and position of the mass and noting any discharge issuing from its pouch, which may be looked upon as the analogue of a crypt in a faucial or lingual tonsil. The shape of the nasopharynx and appearance of the choanæ are also to be noted.

The faucial pillars having been scrutinised for signs of inflammation, the faucial tonsils are inspected; for this purpose the use of a second tongue depressor to retract the anterior pillar is a great help, particularly if the tonsils are imbedded. The colour and size of the tonsils is observed, and the presence of any purulent material or cryptic contents is noted. Palpation will ascertain if they are tender, hard or soft, and if the finger presses firmly on the outer part of the anterior pillar in a backward direction, and if to push the tonsil out of its fossa, some idea may be formed as to how firmly it is attached to the pharyngeal wall. Then, with a bent sterile probe, the condition of the crypts and their contents is investigated, and after a little tincture of iodine has been dabbed on the tonsil. Similar observations can readily be made on the lingual tonsil with a laryngeal mirror. Finally, the condition of the submaxillary and inferior parotid groups of cervical glands is examined, and only then can an opinion be given.

Indications for Tonsillectomy.

If the tonsillar tissue is merely hyperplastic—that is, if no inflammation is present—and if it is not causing obstruction, then there is no indication for operation.

On the other hand, if there are definite signs of obstruction, but only in the nasopharynx, then the adenoids alone should be removed. Dyspnœa and ear symptoms referable to hyperplasia of the faucial tonsils will call for their extirpation. If examination suggests that infected adenoids are responsible for an ear suppuration, chronic rhinitis or sinusitis, pharyngitis or laryngitis, or, particularly, a retropharyngeal abscess, their removal is indicated. A definite history of peritonsillitis, or the presence of enlarged cervical glands not demonstrably due to another cause (teeth, malignant disease, syphilis, Hodgkin's disease, leukæmia, &c.), are clear indications for operation on the faucial tonsils, or, if the inferior parotid glands are involved, on the adenoids. If examination confirms that the faucial tonsils are responsible for recurrent sore-throats, repeated "colds" which always begin in the throat, frequent

rged glands, chronic rhinitis, inflammatory con-ons of the ears, pharynx, or larynx, or that they playing a part in a local degeneration such as sclerosis, then they should be excised. In systemic ase, if the tonsils show evidence of chronic (or ier continued) inflammation, in which the pillars he fauces may share, and are hyperæmic, tender, osed, or adherent to the wall of the pharynx, and a pure culture of streptococci is obtained from r crypts, and especially if they are associated n "glands," then they must be sacrificed.

Recommendations.

rom the fruit of a fairly extensive experience, ch has not been by any means an uninterrupted ch of infallibility, I offer three hints. First, ude neoplasms and blood dyscrasias before setting h to remove what appear to be "just ordinary ils." Secondly, if there is any tendency on the of the patient to bruise readily, have a blood gulation test done. Lastly, the possible presence of genital syphilis should be kept in mind when one sked to remove adenoids for "catarrh" or nasal rmity.

Clinical and Laboratory Notes.

TWO CASES OF ATYPICAL TETANUS.

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HE reports of two cases of cephalic tetanus, one Drs. Fletcher and Fitzpatrick and one by Dr. Neil Simpson, in THE LANCET of Sept. 10th and respectively, afford me the opportunity of ing on record two examples of atypical tetanus h I saw some years ago.

SE 1.—A schoolboy, aged 18, consulted me on Oct. 16th, , on account of a small pustule on his right cheek.

story.—A fortnight previously he had cut himself shaving before playing football on a muddy ground. arly fall smeared his face thickly with mud and the d remained painful and did not heal. He had been from home, sitting for a scholarship examination, when he returned his mother noticed considerable ing and redness of the right cheek and right side s neck.

amination.—There was marked redness and swelling e right side of the neck filling up the space below the of the jaw and extending upwards in front of the ear. A small pustule was discharging just below the minence of the cheek and between this point and the angle of the mouth. The temperature was normal and ulse 100. There was no fluctuation, but the area was ny and tender, especially behind and below the angle e jaw. There was no spasticity of the muscles, but some in the lower jaw on the right side when the mouth opened.

this time there was no evidence of tetanus, and the n was thought to be a subacute lymphadenitis of the ds draining the cheek—the pre-auricular gland and those e neck below the angle of the jaw.

vo days later, as there was no material improvement fomenting, the boy was seen a second time. The ss and swelling had become more localised to the , but there was still redness and œdema of the whole side of the face as well. The boy was therefore sent to rsing home and an incision made in the centre of the en area over the point of maximum tenderness. No was found, and a prophylactic injection of antitetanic n of 1500 units was given subcutaneously. Next day swelling was considerably less. There was some pus arging from the incision and the wound in the cheek firmly healed.

ree days later the conditions in the neck had still er improved; there was only a slight discharge from incision and swelling was localised to this area alone. redness and œdema had vanished. The patient felt well except for some abdominal cramps which had ied him through the night, but which he had not erto mentioned. On pulling down the bedclothes I was fied to observe intermittent contractions of the recti cles of the abdomen. These were easily provoked by exposure, by light touch, and even by pretending to flick the skin in the boy's sight. The spasms were accompanied by shooting pain. On palpation the abdomen felt somewhat rigid, but not markedly so. With the onset of his spasms the abdomen became board-like. It seemed clear, therefore, that the condition was one of tetanus rendered abnormal by the injection of serum. It was hoped that the prophylactic injection of serum, added to the long incubation period, would justify a favourable prognosis. Prof. Thomas Sinclair kindly saw the boy with me the same day. He agreed with the diagnosis and the case was treated in accordance with the method described by Purves-Stewart—namely, 3000 units of antitetanus serum were given hypodermically, 3000 intravenously, and 1500 units intrathecally, after the withdrawal of a like amount of cerebro-spinal fluid. Next day 3000 units were given hypodermically and 3000 intravenously. For a week gradually diminishing doses of serum were continued until 30,000 units in all had been given.

The spasms ceased abruptly after the first series of injections, and the boy made an uninterrupted recovery. He has since gained considerable distinction, both in the examination room and on the athletic field, though a rather extreme degree of "nerviness" has been attributed, justifiably or not, to the use of the serum.

Cephalic Tetanus.

CASE 2.—On Friday, July 21st, 1922, I was asked to see a boy aged 5.

History.—On Monday, July 10th, he fell on his head from a wall five feet high in a farmyard. The right side of his forehead struck the ground and sustained a wound at the junction of the brow and scalp. The wound was about one and a half inches long and was situated about one inch from the middle line. He was somewhat dazed by the fall, but did not lose consciousness. The wound was dressed and sutured the same day. For two days and nights the boy was poorly, and on July 13th the stitches were removed and a fair amount of pus escaped. Next day the boy could not be induced to get out of bed, and even at this early stage his mother thought there was some asymmetry in his face. This asymmetry became more marked on the following days, and on the 21st—11 days after the fall—he could not swallow fluids and had some difficulty in separating his teeth. It was on this day that I saw him for the first time in consultation with his own doctor. I noted the following:—

1. A wound of the right frontal region about one inch from the middle line. This was apparently firmly healed and painless. 2. There was no sign of depression, irregularity, or tenderness in this neighbourhood. 3. The face as a whole was passive and mask-like. When the mouth was opened, the left angle was drawn outward and downward, the other parts of the face remaining immobile. The naso-labial fold on the right side was obliterated. 4. The child could not swallow. When he tried to take water there was a tonic spasm of all muscles of the face and neck, the water being expelled intermittently by a series of short expiratory explosions. He objected strongly to taking any kind of fluid into his mouth and seemed to be frightened when he was forced to do so. 5. There were no intermittent spasmodic contractions other than those produced by trying to swallow water. We watched him carefully for an hour without observing a single one, though his mother had seen them. 6. There was a tonic spasm in both sternomastoids, both splenii capitis, both recti abdominis, and the adductors of both thighs. This spasm was moderate in all muscles—e.g., his chin could with difficulty be brought down to his sternum, the thighs could be abducted, and the head could be laid on either shoulder. His masseters were somewhat more tightly contracted than the other muscles, but the tip of the tongue could be protruded and was not deflected. 7. The pupils were equal and dilated, and reacted rather sluggishly both to light and accommodation. The movements of the eyeballs were apparently normal. 8. The condition of the arms, chest, and abdomen, apart from the recti, was normal. The pulse was 120 and the temperature 98° F. The knee-jerks were somewhat exaggerated, Kernig's sign was absent, and tache cérébrale absent also. 9. The mental condition was quite clear. 10. The most marked feature was a striking right-sided facial paralysis which affected the whole of the right and upper part of the left side of the face. When he tried to close his eyes both globes moved upwards, but the lids themselves did not close. The only part of the face which could perform voluntary movements was the left lower quadrant. The mother told us that the whole face took part in the convulsions.

Having considered the other common causes of facial paralysis—depressed fracture of the skull, fissured fracture tearing the seventh nerve, hæmorrhage, meningitis, and abscess of the brain—we ultimately concluded that the case

was one of abnormal tetanus of the cephalic type. This view was corroborated by: (*a*) The distribution of the paralysis, affecting the side of the wound and the contiguous part of the opposite side of the face. (*b*) The mental condition of the child. (*c*) The fact that convulsions affected the apparently paralysed muscles. (*d*) The tonic contraction found in other muscles, such as the sternomastoids, recti abdominis, adductors, &c. (*e*) The condition of the pupils. (*f*) The so-called "hydrophobic" symptoms when fluids were taken into the mouth.

The boy was treated at once with all the antitetanic serum available in the village near which he lived, and next day by large doses by the various routes. In spite of this, however, more muscles became affected, and he died on the thirteenth day from the receipt of the scalp wound and the second day after I had seen him.

These atypical forms of tetanus have had an added importance in recent years owing to the prevalence of encephalitis lethargica. I have seen two patients with this disease in whom a localised painful contraction of a muscle group closely resembled that found in the early stage of a case of atypical tetanus. In the former, however, complete relaxation of muscle occurs between the spasms; the spasm cannot be provoked by slight stimuli as in tetanus; and even large doses of antitetanic serum have no controlling power upon their occurrence

A case of atypical tetanus has been recorded [2] in which an abdominal operation was actually performed, with a fatal result. In this case the violence of the spasms burst the wound on three separate occasions, and death was due to a low type of peritonitis after all convulsions had ceased for several days. It is reasonable, therefore, to assume that with a correct diagnosis the patient's life would have been spared.

There are many recorded examples of abnormal types of tetanus. As Simpson says, they are certainly rare in any one man's experience, but their recognition becomes daily of greater importance, since the increase in potency of antitetanic serum would seem to justify the hope that, even where the incubation period is short, lives will be saved by its prompt use. They will not, however, be saved unless they are diagnosed early.

RECOVERY OF STREPTOCOCCUS SCARLATINÆ FROM EXPERIMENTALLY INFECTED BOOKS.

BY A. R. BALMAIN, M.B., B.S. LOND., D.P.H. OXF.

(*A Report from the Southern Group Laboratory, Metropolitan Asylums Board.*)

THERE appears to be no certain information that scarlatinal infection is ever carried by books.[3] The whole of the information at present available on this subject rests on surmise, and administration in preventive medicine is handicapped by this lack of exact knowledge.

This investigation was an attempt to ascertain, under experimental conditions: (1) if the *Streptococcus scarlatinæ* would survive on books; and (2) the length of time this organism would live.

Whether infected books can give rise to fresh attacks of scarlet fever is a question which can only be determined by actual infection of human volunteers susceptible to the disease.

The basis of the following work rests on (1) the establishment of the *Streptococcus scarlatinæ* as the cause of the disease by the Dicks,[4] and its confirmation by other workers, and (2) the use of the intracutaneous test (Dick test) as a criterion of the specificity of the organisms used.

[2] S. T. Irwin: Brit. Jour. Surg., vol. ix., 308.
[3] McCartney, J. E.: THE LANCET, 1925, ii., 212.
[4] Dick, G. F., and Dick, Gladys H.: Jour. Amer. Med. Assoc., Oct. 6th, 1923, p. 1166.

Methods Used in this Investigation.

Two strains of streptococci were isolated from t throats of early cases of scarlet fever. The reactio of these strains were investigated and toxins prepar from them. The toxins (diluted 1 : 1000) were test on known positive and negative human controls the intracutaneous method (Dick test) and ga appropriate reactions.

Cultures of these organisms in blood broth w sprayed on to the pages of books in large and sm doses. The streptococci from these books w recovered and isolated daily, both by smearing pie of the infected pages over blood agar plates a dropping other pieces into tubes of blood broth. T heavily sprayed books were examined for 28 d and the lightly sprayed ones for 18 days.

(*a*) *Type of Book.*—The books used were: eig ordinary ruled unused exercise books, two exerc books with ink writing, two printed books with rou paper.

(*b*) *Preliminary Control Test.*—This was perform for all the books before inoculation by the meth described under (*d*). They all contained sporing bac allied to the *subtilis* group, and some books a fe staphylococci. No streptococci of any kind w found.

(*c*) *Method of Spraying.*—The books were spray with the whole blood broth cultures. The spray was of two kinds: (1) heavy spraying with a na atomiser so that every alternate page or selected pa were soaked (dried in three days); (2) light spray with a scent sprayer on every fourth page (dr same day). This corresponded to a good dro infection.

(*d*) *Method of Recovering Organisms.*—For the f 14 days the books were examined daily, then ev three days. A piece was cut out of an inoculated p of each book using sterile scissors and force Separate pieces of paper thus obtained w (1) smeared on blood agar plates, and (2) rolled and dropped into blood broth tubes. After 24 hou incubation the plates and tubes were exami microscopically for hæmolytic streptococci and wh necessary by further sub-culture.

(*e*) *Environment.*—The books were kept in gl jars under different environmental conditions as regards air, light, and temperature, but no differe in the time of recovery of the organisms was dem strated.

Results.

It was found that: (1) The number of streptococ colonies obtained on blood agar from the infec books diminished in number after six days (=sur infection), and no streptococci could be isolated by twelfth day from two of these books. (2) The num of streptococci discernible in stained smears from broth tubes diminished in 11 days. (3) With hea sprayed books recoverable streptococci were sca by the 18th day; not recoverable from one book the 26th day; only in very small numbers from other books on the 28th day. With lightly spra books streptococci were definitely present in sca numbers on the 18th day.

An attempt was made to determine the perio viability of *Streptococcus scarlatinæ* on books dire inoculated by droplet infection by two cases of sca fever. This experiment was not completed.

This investigation has thus shown that the *Strep coccus scarlatinæ* under experimental conditions survive on inoculated books and can be recovered f them during a period of four weeks. The numbe streptococci was scanty after the second week f the time of inoculation.

I am indebted to Dr. J. E. McCartney for encouragement and advice; to Dr. T. H. Woodf for placing cases at my disposal; and to the Me politan Asylums Board for permission to under research work in their laboratories.

Medical Societies.

MEDICAL SOCIETY OF LONDON.

CRIMINAL LAW AND INSANITY.

LORD HEWART (Lord Chief Justice) delivered the th David Lloyd Roberts lecture on Nov. 16th at e Medical Society of London before a large and stinguished audience. The chair was occupied by r. HERBERT W. CARSON, President of the Society, ho reminded his hearers that the lecture was founded a former Fellow of that Society and was delivered rotation at the Royal College of Physicians of ndon, the Medical Society of London, and the Royal ciety of Medicine.

Medico-Legal Misunderstanding.

The medical profession and the legal profession em, said Lord HEWART, to have so much in common, d to be devoted in so unusual a degree to the public lfare, that any real misunderstanding between them on a matter of public importance would be much be deplored. Yet from time to time it is possible discern some indications, at any rate, of a lack of mplete harmony in the views with which the two ofessions respectively regard, or tend to regard, e attitude of the criminal law towards insanity. e true description of the subject matter of that ference, or apparent difference, is of no small portance. Accuracy in this point is essential, and k of it has sometimes led to mistakes. The ject matter is not insanity, but the attitude of the minal law towards insanity. It is natural enough, doubt, that the medical profession and the legal fession should regard and examine insanity from newhat different points of view. That circumstance, from being matter for regret, is matter for positive isfaction. What is to be regretted, if it exists, is lifference of view not upon insanity, but upon the ual and the proper attitude of the criminal law wards insanity. It is probably an underlying mis-ception of the precise nature of the subject matter t has led to a difference which is more apparent n real.

The Legal Principle.

The leading principle of the criminal law of England ating to insanity, Lord Hewart continued, is capable brief and clear statement. It is still to be found in answers given by the judges to the House of Lords McNaghten's case. The law is that every man is sumed to be sane and to possess a sufficient degree reason to make him responsible for his acts until contrary is proved to the satisfaction of the jury o are trying him. In other words, the burden of of where insanity is pleaded is upon the defence. s not for the prosecution to establish the sanity of accused; his sanity is presumed. It is for the used to prove, if he can, that at the material time was, within the meaning of the criminal law, insane. is to be observed that the word is "prove"; it is "suggest," nor "indicate," nor "insinuate," nor such word, but "prove." Nothing short of proof sufficient. In order to establish a defence on the und of insanity it must be clearly proved that at time of the committing of the act the person used was labouring under such a defect of reason m disease of the mind as that he did not know the ure and quality of the act he was doing; or if he know, that he did not know he was doing what was ng. The meaning of these words is sufficiently in. The crucial time is the time of the committing he act, and not some other time, either earlier or r. A sufficient defence of insanity relating to that e must satisfy three several conditions, the first of which are in every case obligatory, while as to third—contrary to an error which is by no means ommon—there is a choice of alternatives. It must proved, that is to say, first, that the accused was fering from disease of the mind; secondly, that in sequence of that disease he was labouring under a defect of reason; thirdly it must be proved that that defect of reason so brought about was of one of two particular kinds. It is here that the alternatives arise.

An Alternative Defence.

The defect of reason due to disease of the mind must be clearly proved to be such as either (1) to prevent him from knowing what he was doing, or (2) to prevent him from knowing that he was doing what was wrong. The defence is not required to prove that both condition (1) and condition (2) were fulfilled, but it must prove the fulfilment of one or other of them. This third requirement, with its two alternatives, may serve to illustrate the difference between the standpoint of the physician and the standpoint of the criminal law. For the purposes of a physician examining a person in order to ascertain whether he is insane, it may be enough to find that the patient is suffering from disease of the mind and is, in consequence, labouring under a defect of reason. When those two facts are established it may follow, naturally enough, that the patient needs medical care and attention. But when the question is the very different question whether a person is to be excused from responsibility for what appears to be his criminal act, the criminal law insists upon further investigation; disease of the mind, of itself, will not afford an excuse. Consequential defect of reason will not, of itself, afford an excuse. If excuse there is to be on the ground of insanity, it must be further established that the defect of reason was of a particular kind and exhibit particular characteristics; that is, at the material time it prevented the accused person from knowing what he was about, or, in the alternative, prevented him from knowing that he was doing what was wrong. A little reflection shows the importance and value of this third requirement. It satisfies at least two tests. In the first place, it seems to be manifestly in accordance with justice and good sense, as it is in accordance with the principles of the English Criminal Law that a man should be excused from criminal responsibility if, through mental disease, he is, at the time of his act, in such a state of unreason as not to know what he is doing. That, of course, is what is meant by not knowing the nature and quality of his act. It means, for example, that he thought he was peeling an apple when he was, in fact, cutting a throat. And a like observation may be made when a man is, through a like cause, in such a state of unreason that although he knows what he is about, he does not know that he is doing what is wrong. Such was the case of a middle-aged woman who strangled her mother-in-law, laid the dead body on the hearthrug, and brought in the neighbours to see how well she had done her work. "It was my duty to do it," she said, "and, you see, I have done my duty."

In the second place, this requirement of the criminal law has the effect of providing a useful test and criterion which the evidence in the case may well enable a jury to apply. In other words, what the prisoner has said, what the prisoner has done, and the surrounding circumstances very often yield material which helps the judge and the jury to perceive whether it is true to say that at the crucial time he did not know what he was doing, or did not know that he was doing what was wrong.

The Law does not Define Insanity.

Such, said Lord Hewart, is the leading principle of the English criminal law upon the matter. The law does not purport or presume to define insanity; that is a medical question. What the law considers is the conditions which have to be satisfied in order that a person may be excused from criminal responsibility. That is a legal question. And, at present at any rate, that question is answered, in this country, in accordance with the principles laid down in McNaghten's case. It is possible, no doubt, to find in text-books, and especially in footnotes, passages which seem to entertain, or to suggest, a broader—not to say a looser—view. It is even possible, perhaps, to find, here and

there, a similar passage in the report, whether accurate or not, of an individual summing-up in a capital case. But the law remains, and it is never to be forgotten that, as matters now stand, it is only the defendant who can appeal to the Court of Criminal Appeal. No such opportunity is open, in England, to the prosecution. Nor is it to be forgotten that while a physician tends to regard primarily the interests of his patient, the criminal law is concerned with the public security. "When I am invited," said Sir Matthew Hale, "to pity the criminal, I reflect also that there is a pity due to my country." That is not to say, of course, that criminal responsibility should be imputed where it does not really exist; but it does mean that criminal responsibility should not be overlooked in those to whom it properly belongs.

There is no reason why time should be consumed in the examination of the silly, the ignorant, or the captious criticisms which have from time to time been directed against the principle of the English law. The ancient philosopher, as everybody recollects, drew a distinction that remains eternally sound, between the kind of controversy called eristic, which seeks triumph, and the kind of controversy called dialectic, which seeks truth. No serious person in this matter has any concern with any argument or representation which does not seek to elicit and to establish what is true. Charlatanism and chicanery, for which, of course, there is a rich and attractive field, may be left severely alone. It would be idle, and worse than idle, to dwell upon their suggestions or to advertise their authors. On the other hand, every serious person is deeply concerned to examine every argument or representation which does aim at the truth, and to treat their authors with sincere respect, however acutely opinions may differ. The test was brought to a point five years ago when, after a certain notorious trial for murder, a committee was appointed, under a learned chairman of high distinction, to consider, among other things, any changes which might be desirable in the existing law relating to criminal trials where the plea of insanity is raised as a defence. The Council of the British Medical Association, among others, tendered evidence and submitted representations to the committee; the materials are fully set out in the extremely interesting and valuable report of the committee, dated November, 1923, and presented to Parliament in 1924. It seems accurate to say that the Association, in substance, approved the rules in McNaghten's case, but added the qualification that no act should be regarded as a crime if at the time when it is done the person who does it is prevented by defective mental power or by any disease affecting the mind from controlling his own conduct, unless the absence of the power of control is the direct and immediate consequence of his own default. The committee so far agreed with the report of the Association as to recommend, first, that it should be recognised that a person charged criminally with an offence is not responsible for his act when the act is committed under an impulse which the prisoner was, by mental disease, in substance deprived of any power to resist. And, secondly, that in other respects the rules in McNaghten's case should be maintained.

Suggested Modification of the McNaghten Rule.

It is important to see clearly the effect which this modification, if it were adopted, would produce upon the existing rule. Is it not manifestly an alteration, and a fundamental alteration, in what has been described as the third requirement or condition? In other words, if the suggested modification were accepted it would be immaterial that the prisoner knew what he was about, or that he knew he was doing what was wrong. He might, indeed, be well aware of the one and the other; but he would still be excused from criminal responsibility if he committed the act under an impulse which he was, by mental disease, in substance deprived of any power to resist.

This suggestion, whatever its merits may be, is not at all a product of the twentieth century; it is really, if the phrase may be employed without disrespect, the ancient and dangerous plea of the uncontrollable impulse, which, in practice, is so difficult to distinguish from the impulse that is not in fact controlled. The doctrine, it will be seen at once, involves two propositions which are by no means of the same kind, nor indeed upon the same plane. The first proposition is a proposition of fact—namely, that there are as a matter not of scientific imagination nor of controversial speculation, but of actual experience, unfortunate persons in existence who, though they know what they are about and also know that they are doing wrong, are nevertheless impelled by diseased and irresistible impulse to commit an apparently criminal act.

The second proposition is a proposition of legislative morality or expediency—namely, that these persons by reason of their number or otherwise, are of such importance as to require or deserve a fundamental revision of the criminal law. It seems to be highly necessary to observe the distinction and the real difference between the two propositions.

The Plea of Uncontrollable Impulse.

As to the first of them, a mere lawyer would, of course, hesitate much before he ventured to express an opinion. It appears evidently to become a proposition of a kind which belongs rather to the field of medical observation and experience, not, of course, provoked by questions asked in a particular cross-examination but derived from special opportunities of general study in an extremely difficult branch of scientific inquiry and research. Let it be granted, therefore, for the sake of the argument—and for the sake of the argument alone—that persons of this unfortunate type do in fact exist; the question remains whether for that reason, it is just and necessary to enterta or to make a drastic alteration in the criminal law. A moment's reflection will show how widely the do would be thrown open if the alteration were mad The objective tests for judge and jury wou immediately and finally disappear. It would be little use to explore the evidence in order to ascerta whether in the particular case the prisoner w perfectly well aware of what he was doing, or perfect well aware that he was doing what was wrong. T crucial, the overriding, the dominant question wou forthwith come to be whether he was acting under irresistible impulse. And upon what materials a with what guidance would the jury be called upon answer that question? Would there be any materia or guidance at all, except the medical opinion, whi the prisoner might be fortunate enough to be able adduce in his favour, contradicted by the medic opinion which might be offered on the part of t prosecution?

It seems natural to ask what are the true dimensio of the difficulty for which so far-reaching a solution suggested. Upon this important question the repo of the committee already referred to may be thoug to be illuminating. "It was established," the repo says, "to our satisfaction that there are cases f mental disorder where the impulse to do a crimi act recurs with increasing force until it is, in fa uncontrollable. Those cases of mothers who have be seized with the impulse to cut the throats of, otherwise destroy, their children, to whom they a normally devoted, are not uncommon."

To pause there for a moment, it is interesting to n that the illustration which is selected is the case f a mother killing her child. But already a spec statute which deals with infanticide offers a leni alternative in cases of mental disturbance falling short of insanity, where a mother not yet fu recovered from the effects of childbirth destroys newly born child.

"Guilty but Insane."

To return, however, to the report of the committ the very next sentence after the two sentences j quoted is in these words: "In practice in such ca the accused is found to be 'guilty but insane.'" I not that a very remarkable statement? It seems so say, in the clearest possible language, that what is

quired is already done. If the proposed change in e law were made the verdict in such cases would be e verdict which is briefly, popularly, and inaccurately scribed as "guilty but insane." But this verdict, it pears, is, in practice, already returned in such cases. What, therefore, remains? "We appreciate," the mmittee frankly add, "the difficulty of distinguish- some of such cases from cases where there is no ntal disease, such as criminal acts of violence, or ual offences, where the impulse at the time is ually not merely uncontrolled, but uncontrollable." d yet a far-reaching change in the law is recom- nded apparently upon the ground (to quote the act words) "that the McNaghten formula is not ically sufficient." Now, even if the hypothesis eady set out be accepted as true, it may be thought at lawyers and statesmen will hesitate long before y open the door to a quite incalculable flood of schief for the purely academic purpose of giving ical sufficiency to a formula, or a superior degree correctness to verdicts which, in practice, are eady returned. But, indeed, the doctrine or theory the uncontrollable or irresistible impulse is not in smallest degree novel. It is, without doubt, older n the McNaghten case itself, and therefore may be en as having been considered and rejected by the rned judges who answered the questions in that e. In the year 1859—that is, 16 years after the Naghten case—the matter was referred to by a at judge in a well-known case. "If an influence," l Baron Bramwell in R. *v.* Haynes, "If an uence be so powerful as to be termed irresistible, much the more reason is there why we should not hdraw any of the safeguards tending to counteract There are three powerful restraints existing, all ding to the assistance of the person who is suffering ler such an influence—the restraint of religion, of science, and of law." But if the influence itself is be held a legal excuse, rendering the crime dis- ishable, you at once withdraw a most powerful raint, that forbidding and punishing its perpetra- n. Four years later—in 1863—Mr. Justice Wightman, R. *v.* Burton, referred to the doctrine of the ontrollable impulse as a most dangerous doctrine, al to the interests of society and the security of life.

The Security of the Public.

As to the suggestion, which is more often implied n expressed, that under the law, as it now stands, ne prisoners are wrongly held to be fully responsible, nay be doubted whether any lawyer knows of any h case. The tendency is the other way—that is, to ept the defence of insanity, especially in a case ch for any reason excites sympathy, upon materials ch are too slender. This course is, no doubt, regarded umane to the prisoner. But perhaps it pays too e attention to the misery of prolonged confinement what is called a criminal lunatic asylum. For the urity of the public, on the other hand, can there any real doubt that the comparative stringency of existing law is necessary? After all, the mere that a man thinks he is John the Baptist does not tle him to shoot his mother. And if a man of ormally jealous disposition entertains suspicions as he chastity of his wife and his suspicions become t it is fashionable to call an obsession and finally xed delusion, is he with impunity to kill her by soning, having done all he could to conceal the ne?

seems true to say that in cases where there is lence of real mental disease antecedent to the mission of the alleged crime, and there is no lence of a motive which might influence a sane on, juries have no difficulty in finding either that prisoner did not appreciate the nature of his act hat he did not know it was wrong.

ut if, Lord Hewart concluded, the law were xed in the way which has been suggested, it might be that in cases where there has been no such lence of mental disease antecedent to the alleged ne, mental experts would be found to say that the ged crime itself afforded evidence that it was mitted under an uncontrollable impulse, and that upon that ground the inference might be based that there was mental disease. If so, the result might be to transfer to a section of the medical profession the question whether a great number of ordinary criminals should be held responsible to the law.

ROYAL SOCIETY OF MEDICINE.

A COMBINED meeting of the Sections of Electro Therapeutics, Medicine, Surgery, and Orthopædics was held on Nov. 17th, Sir HENRY GAUVAIN, President of the Section of Electro-Therapeutics, in the chair. The subject of discussion was

RADIOLOGICAL PITFALLS.

Dr. A. E. BARCLAY (Manchester) said that radiology could only show the gross outline and the density of the substances which the rays traversed. However vital the X ray evidence might be, the radiologist should not use the word diagnosis.

For present purposes he regarded a pitfall as no more than an appearance which gave rise to a blunder—the blunder being self-evident as soon as the interpretation was known. Unless there was real urgency it was desirable to carry out a definite routine and to study a radiograph quietly. This routine might sometimes appear to cause delay, but it would obviate many mistakes which were due to haste. If the radiologist knew beforehand what diagnosis had been reached clinically this knowledge must prejudice his own decision; but he should be supplied with all the vital points in the history of the case, so that he could make his examination on the right lines. There was always a tendency to look for the things which one expected to find, and the physician's diagnosis was very liable to be biased by the radiographic findings. The danger of prejudice was so great that it was of doubtful benefit to the patient if the clinician did his own radiology. The best plan was for the radiologist and the physician to come to their conclusions independently and then to discuss the case together afterwards. The tendency at present was to put too much responsibility on the radiologist.

It was obvious that unless films were of good quality their inferiority was in itself a real pitfall; another cause of error was dark-room carelessness. Dr. Barclay showed a number of skiagrams illustrating his argument. In early lesions of bone, he said, such as those of osteomyelitis, it should be remembered that the changes took time, and at an early stage the radiogram might give either no indication or a wrong interpretation. In conclusion he declared that most pitfalls could be avoided if the radiologist kept his mind alert not only radiologically but also medically, and seldom departed from a well-ordered routine.

Dr. E. I. SPRIGGS (Ruthin) spoke of the danger of allowing a radiological or other special examination to be a substitute for a study of early history and clinical symptoms. The radiologist shared with the surgeon and morbid anatomist the capacity to find something; the question was, had the something anything to do with the illness of the patient? A finding could not be regarded as a diagnosis. "Dropped stomach" or "dropped colon" was not a diagnosis; such a condition resulted from something outside the viscus, and to cure the viscus would not necessarily cure the patient. The second great cause of mistakes was a lack of coöperation between the radiologist and the physician. The radiologist should be told something of the general clinical character of the case. A third class of pitfall was that due to a partial or imperfect examination. Certainly many errors could be avoided by taking oblique skiagrams. A fixed technique meant incomplete examination, and no means which could yield information should be neglected. Dr. Spriggs also demonstrated a series of skiagrams.

Mr. MAX PAGE gave consideration to mistakes in the diagnosis of fractures and in the recognition of malignant bone disease. He had seen a number of gross errors in both these categories and had considerable sympathy with those clinicians who said that

nowadays the radiologist was allowed to take much too important a part in diagnosis. This was especially true in the matter of teaching. Radiology was a physical method which one should make use of as an addition to the information conveyed by the senses, but not as a substitute for it. The omission to take two radiographic views of a case sometimes resulted in foolish mistakes. Stereoscopic views should also be available. Not long ago even competent radiologists failed to provide the surgeon with a lateral view of the spinal column which was of any value in the interpretation of the bone condition. He demonstrated by a series of skiagrams the kinds of mistake caused by misinterpretation of X ray findings. Odd and unusual ossicle formations sometimes caused much hesitation —e.g., in connexion with sesamoid bones—whilst extra ossicles on the patella gave the impression of loose cartilage in the knee. These cases laid definite traps. He had been struck by the futility of relying on radiological plates to diagnose early tumours of bone. In cases of central cyst, or central tumour, or central abscess of bone, the diagnosis must not be attempted by radiology, for a number of serious cases would be missed by waiting for positive radiographic findings. Radiograms would not show whether a condition was simple or malignant; the early development of periosteal sarcoma was not shown by the ordinary radiogram.

Mr. H. A. T. FAIRBANK said that two not uncommon causes of inaccurate diagnosis were ignorance of the normal anatomy, as seen on the X ray plate, and forming conclusions on a case when the film was imperfect. He did not know of any more difficult cases to diagnose than those presenting a suspicion of caries of the spine. In such instances he refused to give an opinion without being supplied with good stereoscopic and antero-posterior films. Several cases of supposed caries were found to owe the spinal deformity to a developmental error. Sarcoma of the spine, perhaps associated with paraplegia, might cause a good deal of diagnostic difficulty. It was difficult to be sure, from the skiagram, of an early stage of adolescent coxa vara. When the displacement was slight a lesion of the epiphyseal line was often overlooked, especially if the film was not very clear. The two femora should always be compared.

Dr. A. F. HURST said that the earliest radiological sign of a growth in the stomach was a fading away of peristalsis as the wave passed along the greater or lesser curvature, a sign which an X ray plate did not reveal. Gastric ulcer near the cardia should only be diagnosed after careful consideration, as most of the abnormalities in that situation were not ulcers, but congenital gastric diverticula. Stasis alone—even a 12-hour stasis—should not be deemed a sufficient reason for diagnosing pyloric obstruction; to justify such an opinion there should also be exaggerated peristalsis. Quite 95 per cent. of cases of pyloric obstruction which were not caused by a new growth were due to duodenal rather than gastric ulcer. A pre-pyloric ulcer was very rare. In pyloric obstruction the stomach was nearly always full of gastric juice when the patient presented himself fasting in the morning. The stomach should be emptied by means of the stomach-tube, after which a meal should be given. The pyloric end of the stomach could then be seen and barium could be seen passing through the narrow pylorus and the irregular duodenum, and the duodenal obstruction was displayed. In such a patient duodenal deformity did not mean that duodenal ulcer was active; it was seen in all types, perhaps 20 years after an ulcer had healed, whether as a result of gastro-jejunostomy or of medical treatment. An ulcer should only be considered active when clinical or laboratory signs showed that it was so. Adhesion at the right iliac fossa was a favourite diagnosis when pain occurred in that region after the appendix had been removed. But this conclusion should not be drawn, whether the patient's appendix had been removed or not, without carrying out the very important test of inflating the rectum and pelvic colon with air. This would unravel the terminal ileum. Another error arose from diagnosing ile stasis, a condition which hardly ever existed; whil still another mistake was to conclude that the findi of a stomach low down meant gastroptosis. Som times the condition was simply a congenitally lo stomach. The same remark applied to ptosis of t transverse colon. In 50 per cent. of young girls t cæcum was erect. Mistakes could also be ma concerning the tone of abdominal viscera. At o time he had thought that duodenal ulcer was nece sarily associated with a hypertonic stomach, b investigation had now shown him that the tone these cases was not abnormal. The tone was sho by the upper level of the gastric contents.

Dr. A. C. JORDAN showed skiagrams illustrati intestinal conditions. Errors could often be avoide he said, by never omitting a barium enema, as th showed kinks in the pelvic colon which the bismu meal did not reveal, as it did not fill the late portions of the large intestine.

Dr. H. WARREN CROWE (Harrogate), speaking radiography of the teeth, said that this could nev prove that a tooth was healthy, however perfect might appear. On the other hand, a radiogram ma it possible to say that a tooth was infected. It w a mistake to suppose that because the bone round tooth was fibrous, dense, or sclerosed, therefore th tooth was not as dangerous as one which had an apic granuloma by its side. As a matter of fact the presen of such dense bone round a tooth indicated a great danger of the system becoming infected than did apical granuloma. The last pitfall he mentioned w that of concluding, because the teeth were very ba that any systemic disease the patient had was nec sarily caused by their presence.

Dr. F. HERNAMAN-JOHNSON emphasised a rema made by Dr. Jordan, that when an abdominal lur disappeared after an enema had been given it w dangerous to assume that it had been merely collection of fæces; it might be the first evidence f carcinoma, which had set up a functional paraly which was the direct cause of the fæcal accumulatio Mistakes might arise when dealing with an accide or emergency in a patient's house. In one such ca following a motor accident a neurologist had been su that the trouble was at the eleventh and twelfth dor vertebræ. The patient was in great pain and it w difficult to get the plates for the skiagram in positio Dr. Hernaman-Johnson had got a plate as far as t second lumbar and was told there was no need f anything further. The symptoms were put down shock. The patient did not get well, however, and months later he skiagraphed the whole spine and fou a very distinct fracture of the third lumbar spine, wh had been missed in the previous examinations. T moral of this case was to decline to accept what oth said about a case and to investigate at least five six vertebræ around the site of the alleged injury. was quite sure ileal stasis existed as he had seen a ca of it. He also thought, in spite of what Dr. Hurst sa that now and then actual ulcers occurred towards te cardia, though they might be missed unless the patie was first examined in the horizontal and then in t vertical position, to allow the opaque meal to fill the cavity.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.

A MEETING of this Society was held on Nov. 18, when Dr. E. H. SNELL (M.O.H., Coventry) to the chair in the absence of the President, Dr. WHEATLEY. Dr. JOHN BUCHAN (M.O.H., Bradfo opened a discussion on

HEALTH ASPECTS OF THE FACTORIES BILL.

He said that factory legislation, which had had a gr influence for good on the people of England, be 125 years ago, thus preceding by many years legislat dealing with health and education. The Factory A were administered by a department in Whitehall wh

l little other relationship with either health or ıcation. The present Factories Bill was a consoli- ing measure; it marked but few fresh develop- nts in such legislation, and Dr. Buchan found it ficult to see why it was supposed again to stand need of such consolidation, this being the third empt since 1878. His criticism, he said, would bear n some of the minor points of the Bill. It used one m to denote both factories and workshops, but definition raised administrative difficulties. The ct of the change would be to lay the responsibility the administration of workshops on the Factories partment of the Home Office, and he thought this s unlikely to mean increased efficiency or economy. e last report of the Factories Department showed t in 145,000 factories the factory inspectors dealt h 19,000 cases of sanitation, whereas in 128,000 istered workshops the district councils dealt with r 40,000 matters of sanitation and cleanliness. It s provided that the Home Secretary could delegate ıe of the duties, but he was not paramount, and rict councils, as a whole, could not be said to have great love for duties which he had delegated to m. If those councils were required to do the work hould be part of the Bill and come as a decision of liament. He had wondered what had occurred he last 50 years to cause the Government to revert he position before 1878, but he found that the tories Department, in dealing with sanitation, often rted what difficulties they encountered in getting ective sanitary accommodation rectified. But the retary of State could not delegate to councils the ting of workshops. To make this new Act a kable one, much was left to the common sense of medical officers of health, and Dr. Buchan believed se officers would do their best to make it a success, he regarded it as a badly drafted measure. The ers to act in default of the district council (vide ıses 10 and 11) could not be put into operation. art of the new Bill which he approved was that ch took power to order a medical examination of loyees in particular circumstances. A very good ance was the common one in which dusty occupa- ıs were liable to set up pulmonary tuberculosis. hoped it would be a very effective provision. It st be carried out in consultation with the Ministry Health. As it was presented in the Bill, however, as somewhat weak, as medical supervision could efused by a workman, and what was allowed to be e in this respect was what the employer might sider reasonable. This would probably prove to different from what the Home Office and the istry of Health deemed reasonable.

he clause concerning the lifting of weights in a ory by women and young people was well ntioned, but naturally the weight which could be fortably lifted would vary with the individual, and clause was in the control of factory inspectors, would probably be slow to pass such opinions as framers of the Bill had in mind. Clause 53 dealt h basement bakehouses, and in the new definition age rooms were not regarded as part of the ehouse. The definition, which Dr. Buchan sidered defective, read: "Any place in which are ed bread, biscuits, or confectionery from the ing or serving of which profit is derived." Dr. han considered that the clause dealing with the ification by the doctor of young persons as fit for articular employment was a definite advance. sically defective children could be prevented from ring factories, but he thought that some further vision was needed dealing with the after-care of such dren; the factory question was for them not the one, nor the most important. It illustrated very the undesirability of dealing with factory services pendently from other health functions. Certainly ould not be the province of the factory inspector ay that a particular child should not be allowed to k in a factory.

ieut.-Colonel F. E. FREMANTLE, M.P., did not agree t the Bill brought in only minor changes. But at me when industry was hard put to it to make ends meet it was scarcely to be wondered at that employers were somewhat afraid of further legislation. This went to the root of the difference between the Home Secretary, who was determined to get this Bill through if he could, and the employers of labour, who were doing what they could to prevent it. Certain points in the new Bill closely affected the health of the worker. The alterations in regard to welfare provisions were negligible, but two important omissions concerned the means at the disposal of employees for washing and for drying their clothing. It was the boys who required protection against weight-lifting, as they liked to emulate men in feats of strength. Women and girls could usually be trusted not to go beyond their comfortable capacity. With regard to hours worked, the only restrictions in this Bill concerned women and young persons of 14 to 18 years of age. The hours they worked must not exceed ten a day, or 40 a week, or not more than 12 hours must be spent daily in the factory, including meal times. Some factories allowed a ten-hour day for five days, to permit a long week-end, but Colonel Fremantle thought that nine hours should be the limit. At present, except under special circumstances, overtime for young persons was illegal, but this measure now made that permissible. The Home Secretary might, for seasonal trades or exceptional pressure, allow young persons to work 50 hours a week, but on no day must the hours exceed 11, or with meal times 12 hours daily. He thought that overtime should not bring the weekly hours worked for young persons beyond 48. Where sanitary measures were concerned he thought powers should be given to the Home Secretary only after consultation with the Ministry of Health. A provision about such consultation should be inserted in the Statute. He thought the term "medical officer" should supplant that of "doctor," as the meaning of the latter was teacher. Many workshop proprietors already appointed medical officers for purposes of their own and for the welfare of their employees; and when such a medical man could undertake the general medical duties of the factory, he got to know the people in such a way that he was best qualified to maintain the health of the workers and prevent sickness. He doubted whether the average school medical officer would be suitable for factory work, which should be a complicated piece of clinical work. A factory surgeon could not well certify people as fit or not fit without knowing a good deal about the work in question. What was required, he thought, was an inspection as intimate in the factories as into ordinary works of sanitation, and he was doubtful how far this Bill would carry that out. The Secretary of State and his Department must be helped by constant consultation with the Ministry of Health.

Dr. A. H. BYGOTT (M.O.H., West Suffolk) described the Bill as a departmental measure, and did not see why the work of the whole office should not be taken over by the Ministry of Health; it was one of the purposes for which that Ministry was constituted. He regarded the Home Office as a moribund institution. He objected to so little a cubic space provision per worker as 250 cubic feet; at least 400 cubic feet should be allowed. Heating and the drying of clothing should be included in the Bill, and no overtime should be worked by young people, except in the case of breakdowns and other matters of emergency. He did not think the ordinary medical practitioner, with no knowledge of factories and no qualification in public health, should be appointed to deal with factories officially.

Dr. CYRIL BANKS (M.O.H., Halifax) thought it would be a pity if the local authorities were deprived of the powers they now possessed for supervising the conditions under which people worked; they had a good deal of influence with mill-owners in getting them to do necessary things. Factory inspectors were not by any means always reasonable in their demands.

Dr. STELLA CHURCHILL (London County Council) doubted whether the present number of factory inspectors was adequate, and thought that the conditions of work for young people in offices should be

included in the Bill. No person under 18 years of age should be allowed to work as many as 48 hours a week. Was there anything in the Bill to stop dwelling-houses being used for factories? If employers appointed their own medical officers she thought that the latter would not feel free to say what they thought.

The CHAIRMAN said he lived in a town which bristled with factories, and yet all they had was one-tenth of one factory surgeon devoted to those factories. What could he do in that time? It was a mere side-show. Medical officers were wanted inside factories and workshops to study the conditions of work, in connexion with both employees and employed.

Dr. BUCHAN briefly replied.

ROYAL SOCIETY OF ARTS.

AT a meeting of this Society on the evening of Wednesday, Nov. 16th, at which Lord DAWSON OF PENN occupied the chair, Dr. LEONARD HILL, F.R.S., delivered an address entitled

Overcrowding in Public Conveyances.

Governed by traditional fear of catching cold, he said, travellers demanded closed and heated cars, and shunned the invigorating blow and exposure to sunlight that they should have to keep them in health. Man was naturally resistant to cold, and had very little trouble in adapting himself to it; when he did so he was free from infection and dust, and enjoyed the stimulation of his heat-producing mechanism and of his whole system. The magical effects of open-air schools on weakly children were well known. Wind blowing on the face put the mucous membrane of the nose and throat in the best condition for resisting infection, but a cold floor and warm stagnant air caused it to swell and become congested and covered with thick secretion; it was then vulnerable to infection. Persons whose membranes were habitually in this state bred germs and enhanced their virulence. Since the body's defence against infection depended largely on the rate of evaporation from the membranes of the nose, throat, bronchi, and conjunctivæ, a supply of cool fresh air was very important. The more the heat loss from these surfaces, the greater the compensating flow of blood, and the greater the secretion of cleansing lymph. This loss might be four times as much out of doors as indoors. Prof. Hill had introduced a "kata-thermometer" to measure the rate of cooling from body temperature in a given atmosphere, and had measured with it the hygienic conditions in various public conveyances. In a fresh, warm room the cooling power was about 6 dry-bulb and 18 wet; in a stuffy room, 4 and 14 respectively. In a cool, fresh room, like a sanatorium ward, the readings might be 10 and 25. Out of doors the dry "kata" gave a figure of about 10 on a summer day, 20 in a cool breeze, and 40 in a cold winter wind. A cooling-power of 14 dry was required to increase the heat production of the body when resting in ordinary clothing. The cooling power of the atmosphere of a compartment in a steam train varied, according to season, position of passenger, and aperture of windows, from 5 to 18½. Inside a bus in October it might be 9, in a tram in August it might be as low as 4, and the reading in a North London electric train was 4 in August, and 7 in October. Tube trains showed a cooling power of 5–8 in August, and 7–16 in October. The ventilation of trains should be improved by the fitting of exhaust fans, to run when the train was stationary, and the heating should be applied to the floor itself and reduced in intensity. Fog was responsible for overcrowding, delay, and faulty ventilation alike, all of which made for ill-health. Some of the crowding in trains might be reduced by abolishing classes. The danger to health in crowded vehicles was not in chemical pollution, which was obvious and distressing, but in the sharp rise in the degree of bacterial pollution. The organisms might be those of catarrh only, or of any of the exanthemata, of diphtheria or tuberculosis, poliomyelitis, or encephalitis lethargica.

Air Pollution in Tubes.

Dr. GRAHAM FORBES gave a summary of the results of an investigation conducted by him in 1920 on the air of the tube railways. 20 per cent. of the organisms belonged to varieties which grew in the throat. Tube air did not greatly encourage the development of organisms which grew at room temperature; the pollution ratio with the outside air was between 11·7 and 15·7 to ten. It contained, however, from 2½ to 5½ times as many of the organisms which grow at body temperature—the more important class for public health. These figures included the old Southern London railway. The bacterial content increased rapidly with the passenger rate, but the increase stopped at a certain point of overcrowding, possibly because of the resulting stagnation of the air. Humidity was a factor very favourable to bacterial survival. Chemical investigations, not yet published, showed that the carbon dioxide content was slightly higher than the 1902 standard, and that an excess of this gas was associated with humidity and bacterial pollution. The chemical pollution in the tubes had been found greater than in most public vehicles above ground, but less than in some places of entertainment.

Lord DAWSON entered a plea for older people, who were less able than young ones to stand fresh air in large quantities when they were fatigued.

Mr. FRANK PICK, general manager of the London General Omnibus Company, said that as long as passengers had been left to provide their own ventilation there had been constant disputes; buses were now fitted with an unclosable set of louvres behind the driver's seat, and the side windows could be opened if necessary. In compensation for the covering in of the tops, sliding windows had been fitted which allowed a good draught; these were also being fitted to the insides of buses.

MANCHESTER MEDICAL SOCIETY.

AT a meeting of this Society held on Nov. 2nd, Dr. J. GRAY CLEGG, the President, took the chair, and Dr. N. KLETZ and Mr. A. H. BURGESS opened a discussion on

Chronic Gastric and Duodenal Ulcer.

Dr. KLETZ said that the one ætiological factor which seemed to be approved by experience was infection—i.e., by septic material carried from foci of latent infection and primary emboli in end-arteries of the stomach or duodenum. It was important to go on seeking for the causes, since in the absence of such knowledge both medical and surgical treatment were liable to fail, because the cause remained operative and was consequently liable to reproduce the lesion. Clinical diagnosis both of gastric and duodenal ulcer was difficult. Diagnosis meant not merely recognition of the presence of an ulcer but also of its size, extent, locality, and relation to surrounding points and, if possible, of its chronicity. Pain was the chief symptom, and its regular rhythmical occurrence was regarded as indicative of ulcer and even, according to the type of rhythm as showing the position of the ulcer, whether gastric or duodenal. These deductions were unwarranted. Gastric pain—i.e., pure visceral pain—was either "delayed" or "immediate." It arose not in the ulcer itself, but as a result of hypertonus or abnormal tension of the gastric musculature. Either type of pain might be associated with ulcer but could equally well be evoked by stimuli from distant organs, such as the gall-bladder and appendix, acting on the stomach through reflex nervous mechanisms. Fullness might have the same significance as pain, and the absence of pain did not prove that no organic gastric or duodenal lesion was present. Somatic signs, when definitely localised and clear-cut, were of great

lue. Dr. Kletz drew attention to the importance complete investigation by radiography, fractional stric analysis, and examination of stools for occult ood. Each of these must be correlated with a reful clinical history and a thorough physical amination. Treatment was by no means neces-rily surgical. The first step should always be to ek for any focus of infection and it was especially nportant to examine the accessory nasal sinuses d teeth by X rays. Operative treatment should ways be undertaken: (1) where there was any ganic obstruction or hour-glass deformity;) where there was relapse after adequate medical eatment; (3) in cases of penetrating ulcer; (4) in ses of recurrent hæmorrhage; (5) when the ulcers re extremely chronic and indurated; and (6) in favourable economic or social conditions. Other ses should be treated medically. Failure to reduce idity might follow gastro-enterostomy and lead to currence of symptoms or even to jejunal ulcer, d adequate dietetic and medical control was sential after operation.

Mr. A. H. BURGESS said that from the published ures duodenal ulcer appeared to be much mmoner than gastric ulcer in the North of ngland, whereas in London gastric ulcer was more mmon than duodenal. Coincidence of gastric and odenal ulcer was frequent. D. P. D. Wilkie,[1] in analysis of 300 operations, had found that in per cent. of all duodenal ulcers there was a gastric er, and that in 53 per cent. of patients with stric ulcer one or more duodenal ulcers were sent. Rosenow had isolated streptococci from teeth and tonsils of patients with peptic ulcers, d also from ulcers removed by operation, and by ravenous injection of these streptococci into imals had produced ulcers in their stomachs ilar to those in man. From these ulcers strepto-ci had again been isolated, and had produced ilar ulcers on intravenous reinjection. These earches, said Mr. Burgess, emphasised the import-ce of a careful search for any focus of infection in teeth, tonsils, nasal sinuses, or elsewhere before eration, and in the appendix and gall-bladder ring operations. He considered that the super-ation of carcinoma upon gastric ulcer did not occur more than from 5 to 10 per cent. of cases. The onic ulcer arose as an acute ulcer or erosion; st erosions of this kind healed under medical atment and only a small proportion become onic. Medical treatment should therefore be opted in the early stages, and surgical treatment ould be considered only when it failed to relieve symptoms, or when they repeatedly recurred. mplications such as hæmorrhage, obstruction, and acute or chronic perforation, were indications for gery, and operation should be seriously con-sered where radiological examination showed a finite ulcer crater or marked deformity of the mach or of the duodenal cap.

Gastro-enterostomy for chronic ulcer of the stomach d first been performed by Doyen in 1892, and for odenal ulcer by Codivalla in 1893, and for many rs it had been the only operation employed in se cases. It had soon become apparent that its sults, both immediate and remote, were much tter in duodenal than in gastric ulcer. Excision the gastric ulcer with gastro-enterostomy had been d, but was soon abandoned, since recurring ulcer l even perforation sometimes followed. It had w come to be recognised that so far as the surgical atment of gastric ulcer was concerned there were essentials: (1) removal of the ulcer itself, ner by excision or by the cautery (Balfour); and the performance of gastro-enterostomy, or at any e, of some other operation by which the bile and ncreatic juice was allowed to enter the stomach ely and so diminish the tendency to hyper-dity. If hyperacidity persisted after gastro-erostomy then a secondary (anastomotic) ulcer was more likely to follow. The two essential procedures could be carried out either separately, as when excision or cautery-destruction was combined with gastro-enterostomy, or could be combined in the single operation of partial gastrectomy, often technically easier. The objection to partial gastrectomy was that it involved the sacrifice of a large amount of healthy stomach, often many times greater than the actual ulcer; though usually this did not appear to cause any ill-effect, yet several cases of pernicious anæmia had been reported following partial gastrectomy. The most difficult cases were those in which the ulcer was on the lesser curvature, high up, near the cardiac orifice. In such a case the partial gastrectomy would involve the loss of almost the whole stomach and local excision combined with gastro-enterostomy, if at all possible, was a better operation. Jejunostomy had sometimes to be performed in these cases, absolute rest being given to the stomach for many months, but relapses might occur when oral feeding was recommenced. L. R. Braithwaite [2] advocated in such cases the operation of cholecystogastrostomy ("gastric bilification") which had previously been suggested by Babcock.

In duodenal ulcer gastro-enterostomy gave good results in from 85 to 90 per cent. of cases, and combined with the removal of the ulcer by excision or cautery, appeared to be the procedure of choice. The "fly in the ointment" was the occasional supervention of jejunal or gastro-jejunal (anastomotic) ulcer. The estimated frequency of this unfortunate complication varied according to different writers. Balfour found that it occurred in 1·6 per cent. of gastro-enterostomies performed at the Mayo Clinic, whilst Lewisohn, of Mount Sinai Hospital, New York, found that 34 per cent. of 68 cases re-examined four to nine years after gastro-enterostomy showed gastro-jejunal ulcer. To avoid this complication surgeons had worked along two lines; some confined themselves to operations on the pyloric region, such as pyloroplasty and its many modifications, Finney's operation, or gastro-duodenostomy, whilst others radically excised a segment of the duodenum, sometimes combining this with extensive resection of the pyloric portion of the stomach (Pannett, von Haberer, Finsterer). One of the main objects of extensive resection was to produce marked lowering of the gastric acidity, but secondary ulceration had been known to follow all these operations. Of 100 cases of gastro-jejunal ulcer operated upon at the Mayo Clinic, and analysed by Balfour,[3] 20 per cent. were associated with anacidity, so that anacidity after gastro-enterostomy was not a certain protection against gastro-jejunal ulcer.

[1] Brit. Med. Jour., 1926, ii., 469.

[2] THE LANCET, 1926, i., 900.

[3] Annals of Surgery, 1926, lxxxiv., 271.

EDINBURGH OBSTETRICAL SOCIETY.

Reduction of Maternal Mortality.

IN the course of a valedictory address on Nov. 9th, the retiring President, Prof. R. W. JOHNSTONE, discussed the means of reducing maternal mortality. At present, he said, not more than about 9 per cent. of mothers in Scotland attended antenatal centres; if this number could be increased to 90 per cent. the maternal mortality question would cease to be a burning one. As regards intranatal care the first general principle to be borne in mind was that in the absence of complications a natural unassisted labour was always more favourable to both mother and child than an instrumental one. The pendulum had swung too far in the direction of instrumental interference. Antenatal examination enabled cases in which any difficulty was likely to be encountered during labour to be separated from those in which labour was likely to be normal. If all the cases in the latter category were allowed to remain normal

by being permitted to take their course except in the presence of true obstetrical indications, the effect would be a far-reaching improvement in results. Discussing the advisability of handing such normal cases in larger number over to the care of competent chosen midwives, he contrasted this plan with the alternative scheme for an official maternity service such as had been advocated by some obstetric teachers. He was of opinion that such a service would lead to midwifery becoming purely a specialty and he contemplated any such outcome with reluctance. He thought that the available beds for maternity cases ought to be greatly increased, not only in large centres but in country districts, and that in the latter at any rate patients might be encouraged to enter hospital and be there attended by their own doctors. This would tend to raise the standard of midwifery practice throughout the country without actually making midwifery an exclusive specialty. In industrial class practice, he said, midwifery was inadequately paid, and until the remuneration was better it could not be hoped that the standard of obstetric practice would be raised very much. The time given to the clinical study of midwifery in the curriculum should be greater, for it was absurd that the study of a vital subject like practical midwifery should have the same period allocated to it as to diseases of the skin and other minor specialties.

Reviews and Notices of Books.

GONOCOCCAL INFECTION IN THE MALE.

By ABR. L. WOLBARST, M.D., Urologist and Director of Urologic Clinics, Beth Israel Hospital. London: Henry Kimpton. 1927. Pp. 237. With 82 illustrations and 7 plates. 25*s*.

Dr. Wolbarst considers that a book on this subject is called for because there has recently been "a considerable advance in our knowledge of the treatment of male gonorrhœa and its complications." Whilst welcoming his treatise we do not agree that there has been much progress during the last decade. It is true that during and after the war many new methods were introduced, involving the use of new instruments and the application of electrolysis, diathermy, and cauteries; but as a result the mucous membrane of the urethra has often been subjected to trauma which has had effects more distressing than those of the gonococcal infection itself. The over-treatment of ten years ago is, therefore, giving place to the laissez-faire policy of pre-war days, and with the exception of diathermy hardly any method of treatment is now in common use which was not then employed.

Dr. Wolbarst, however, considers that advance has been made in physical therapy, intravenous and local medication, protein therapy, and, most important of all, by Belfield's method of washing out the seminal vesicles through the vasa. In his personal experience "covering several hundred cases, this operation has proved of inestimable value," and is the "ideal method of treatment in the average case of vesiculitis." Dr. Wolbarst employs diathermy not only in the treatment of such complications as epididymitis, arthritis, prostatitis, and vesiculitis, but also in cases of uncomplicated anterior infection. For this application to the anterior urethra he uses a straight electrode inserted down to the bulb, or in some cases electrodes applied externally to the lateral walls of the penis like a splint. His results in localised anterior urethritis seem to be as good as those obtained in this country in the treatment of prostatitis and epididymitis. The final chapter of the book is contributed by Mr. J. E. R. McDonagh, whose views are stimulating, though for the most part cannot be understood without reference to his previous publications. The treatment of gonorrhœa has, however, proved such a stone wall that an original thinker ought to be encouraged rather than discredited on the score that his statements ar unproven.

Taken as a whole Dr. Wolbarst's book is the cleares and the most complete work that has yet appeare on modern methods of treatment in gonorrhœa.

PNEUMOTHORAX AND SURGICAL TREATMENT O PULMONARY TUBERCULOSIS.

Second edition. By CLIVE RIVIERE, M.D. Lond F.R.C.P., Physician, City of London Hospital fo Diseases of the Heart and Lungs, and East Londo Hospital for Children. London: Humphre Milford, Oxford University Press. 1927. Pp. 31 10*s*. 6*d*.

THE second edition of Dr. Riviere's book is i several respects an improvement on the first, publishe ten years ago. During this interval there has bee no revolutionary change in pneumothorax treatment its technique has been perfected, and its popularit has been further established. But important advanc have been made in the surgical treatment of pulmonar tuberculosis, and this is why the author has advisedl included in the second edition several chapters o this subject. In Part I. the original 14 chapters hav grown into 19, and much new material has bee provided in connexion with such important problem as the reduction of adherent pleura and the duratio of the treatment.

Dealing in Part II. with the surgical treatme of pulmonary tuberculosis, the author has wise avoided operative details and technique. He giv an account of the underlying principles of the vario operations, and of their prospects of success as judg by the available statistics. In this way he enabl the busy practitioner to form an estimate of t value of these operations. In the case of pneumothor treatment a certain amount of experimentation often justifiable, for if the treatment is a failu it can easily be discontinued without the patie suffering much from the attempt. But the surgic operations entail pain and discomfort and leave litt room for a tactical retreat; infinite caution and wide experience are necessary if the patient is to fairly treated. Discussing the results of the surgic treatment of pulmonary tuberculosis, the auth writes: "In gauging their value it is well to rememb that they represent the work of those surgeons mo highly skilled in this branch of work . . . ." Prac tioners responsible for the choice of a surgeon w insist on choosing one who has successfully master this highly technical subject.

HYGIENE AND SANITATION.

By JESSE FEIRING WILLIAMS, M.D., Professor Physical Education, Teachers' College, Columb University. London and Philadelphia: W. Saunders Company. 1927. Pp. 344. 10*s*.

THIS book is intended to present to the beginner t fundamentals of hygiene and sanitation, and is wl adapted to that end. It opens with a brief elementa review of the history of health care in modern tim and lays commendable stress on the need for a cle understanding of the descriptive terms in common u Subsequent chapters are devoted to personal hygien the care of expectant mothers, of children, and of t aged and infirm; the dual rôle of hygiene and sani tion in the prevention of disease; lighting, heati and ventilation in relation to the home and t factory; and national and international organisatio for preserving and promoting the health of the peop Lists of books for collateral reading are supplied, a questions at the end of each chapter, which will b useful to teachers. We notice that measles is includ among the diseases spread by milk, a mode of tra mission which has not, so far as we know, be substantiated. A statement on p. 19, also, mig give the impression that Jenner lived and worl subsequently to Chadwick and Simon. Such sm defects hardly detract from the value of a very use little book.

RGERY OF THE EYE AND ITS APPENDAGES.

Chirurgie de l'Oeil et de ses Annexes. Third edition. By F. TERRIEN, Professeur de Clinique Ophtalmologique à la Faculté de Médicine de Paris. Paris: Masson et Cie. 1927. Pp. 646. Fr.100.

THE number of excellent text-books of operative gery of the eye which have been published of late ars by English, French, American, and German iters makes the choice between them somewhat barrassing. English readers, besides Grimsdale l Brewerton's text-book, have access in their own gue to Torok and Grout's work, and to Dr. Sweet's nslation of Meller. For French-reading students rrien's work, enlarged and revised in this edition, npetes on equal terms with that of Duverger and lter, which appeared last year. Terrien's book is re complete, describing not only the common erations, but a large number that are very seldom formed, including some which are not even ommended by the author. Thus, owing to the portance of the subject, the operations for intra-sular extraction of cataract, both that of Smith and t of Barraquer, are described in some detail, but the hor recommends them only in very exceptional umstances. It would be difficult to include all operations that have been proposed for glaucoma, the majority of them are described. The same lies to lid operations. The descriptions themselves adequate, and are greatly assisted by the very e number of figures illustrating the text. These ires are not ambitious—there are no coloured plates, instance—but they are clear, and serve their purpose nirably. Only here and there could we wish for re copious illustration, as, for instance, in the cription of excision of the lacrymal sac. Perhaps operation is not so popular in France as it is here. greater space and far more copious illustration is orded to the operations which provide drainage for sac through an enlarged opening into the nose. his book is comprehensive in most respects, and h as a work of reference and a guide to intricate cedure will be found of great value. Only as ards the newer methods of plastic surgery of the and socket that have been devised since the war reader unlikely to find what he wants.

ACTICAL NURSING.

Including Hygiene and Dietetics. Seventh edition. By the late HERBERT E. CUFF, M.D., F.R.C.S., Principal Medical Officer to the Metropolitan Asylums Board, London. Rewritten and enlarged by W. T. GORDON PUGH, M.D., B.S., Medical Superintendent, Queen Mary's Hospital for Children, Carshalton. London and Edinburgh: William Blackwood and Sons, Ltd. 1927. Pp. 754. 10*s.* 6*d.*

N this edition many changes have been made to t the requirements of the examinations for nurses ituted since the previous edition was published. new matter is chiefly in the sections dealing with etics, ward work and hospital administration, lin treatment, diseases of children, and the use of a-violet light and X rays. Over 150 illustrations e been added. A special feature is the inclusion the appendix of the questions, except those in tomy and physiology, which have hitherto been at the written examinations of the General Nursing ncil of England and Wales. References are given r each question to those pages on which the ropriate answer is to be found.

he book is simply and clearly written, and besides ng all the essential facts which a nurse is likely require, contains enough medical and surgical ails to enable her to understand the dangers of h disease and the aims of treatment. She may then her part with some knowledge of the principles g followed by the doctor in charge. In some places duties of the nurse, apart from those of the doctor, not stand out in sufficient relief. For example, in the paragraph on the nursing and treatment of pneumonia, although stimulants and bleeding are discussed, no mention is made of the great importance of frequent cleansing of the nose and mouth in preventing nose and throat complications. The sections on hygiene, bacteriology, and dietetics are simple and clear, and contain enough of the groundwork of these subjects to help a nurse in her practical work.

The book contains all that a nurse need know in order to pass her examinations, and much besides that is relevant. Dr. Pugh is to be congratulated on condensing so much into a handy volume, and on the excellent index provided.

THE SKIN: ITS CARE AND TREATMENT.

By ALBERT STRICKLER, M.D., Professor of Dermatology and Syphilis, Temple University Medical School. London and New York: Appleton and Co. 1927. Pp. 194. 5*s.*

THIS small volume can be described as a household treatise, since its contents can be readily understood by any adult layman. The author, who is well known on both sides of the Atlantic as an expert dermatologist, has done well to emphasise the importance of prevention, and no detail in the daily skin toilet has seemed to him too trivial for mention. Bathing and washing, the value and misuse of soaps, their relative causticity, the question of "hard" water, rules for diet, the special treatment of infants—all these and many other subjects are discussed in the simplest terms. A good deal of space is devoted to the prevention and treatment of acne in the adolescent, pityriasis of the scalp and its possible sequelæ, and such common ailments as chilblains, sunburn, urticaria, rosacea, and warts. It is interesting to observe that Prof. Strickler does not offer any wholesale condemnation of the use of cosmetics, which have gained an apparently unassailable hold on the women of to-day. He discusses them rationally and indicates some of the more obvious fallacies and dangers. This section is one of the most original in the book, and should exert a healthy influence over some of the many victims of unscrupulous beauty specialists. The low price of publication doubtless accounts for the absence of illustrations and diagrams; nor need this be deplored, for Prof. Strickler's object is to educate the public, not to teach them dermatology. His book is probably the best of its kind from American sources.

RECENT ADVANCES IN ANATOMY.

By H. WOOLLARD, M.D., Elder Professor of Anatomy, University of Adelaide; late Assistant Professor of Anatomy, University College, London. London: J. and A. Churchill. 1927. Pp. 302. 12*s.* 6*d.*

AN anatomist of the latter part of last century, seeing a book which deals with such subjects as the different sorts of sensations, or central retinal projection, or the origin of the cerebro-spinal fluid, might consider it a physiological work. It is not so to-day. Physiology looks at the structure of the body from the viewpoint of function, while anatomy considers function from the standpoint of structure, and there was, at one time, a marked tendency in each camp to forget what it was looking at in the excitement of discovering new methods of observation. Recent years, however, have seen a more reasonable outlook and, consequently, a nearer approach to each other of the two fundamental medical disciplines. Anatomists in particular, dissatisfied with the functional ideas offered to them, have been pushing their inquiries beyond the dissecting-room, into the laboratories and experimental theatres, and gaining new notions about the structures with which they deal. While much still remains to be done in the middle of the anatomical field, its boundaries are now widened to such an extent that it is difficult for those who are actively working in some particular portion of it to keep in touch with all the activities going on elsewhere.

Prof. Woollard's little volume is, therefore, very welcome. It does not profess to deal with all the studies which are included under the usefully comprehensive term "anatomy," for this would hardly be possible, but it gives a good idea of certain modern work. Beginning with an interesting account of Prof. Chambers's new art of microdissection, the author goes on to a consideration of some aspects of tissue culture; subsequent subjects, in addition to those mentioned in our first sentence, include ovulation, the Miller ovum, growth centres and organisers, morphogenesis of nerve-fibres, vital staining, origin of blood cells, postural organs, the red nucleus, extrapyramidal system, cerebellum, and X ray anatomy—a good set of important matters, each chapter having a reference list of cited literature. Much of the work has been done in America, where a happy combination of enthusiasm and capital has opened up great possibilities. It is well that all these views should be put before us, although it remains to be seen whether some of them will stand the test of time and further research. There is much information in this book which will, we think, be new even to some anatomists, and its success is certain. In the next issue the author might look to his Latin grammar. The book is of handy size, well printed, and clearly illustrated, and a good member of an excellent series.

HYPOTENSION.

By ALFRED FRIEDLANDER, Professor of Medicine, University of Cincinnatti. London: Baillière, Tindall and Cox. 1927. Pp. 193. 13*s*. 6*d*.

THIS book is a reprint of an excellent article which appeared in an American medical journal and has already been the subject of comment in our pages (THE LANCET, August 13th, p. 345). Prof. Friedlander deals in succession with all the conditions in which a lowered blood pressure reading may be obtained, and with the various tissue extracts and other substances known to have a hypotensive action. His useful monograph should find many readers.

THE ELECTROPHONOÏD METHOD OF ZÜND-BURGUET.

By MACLEOD YEARSLEY, F.R.C.S. London: William Heinemann. 1927. Pp. 108. 5*s*.

THIS small book constitutes a manual of Dr. Adolphe Zünd-Burguet's method for the treatment of chronic deafness by auditory re-education, and it has been read by Dr. Zünd-Burguet who, in a modest foreword, suggests that the originality of scientific work "consists as much in the strictly correct interpretation of known facts as in the presentation of personal discoveries," the words being equally applicable to himself or Mr. Macleod Yearsley.

In a brief résumé of the methods employed during the past 100 years in the treatment of chronic deafness, Mr. Yearsley points to Victor Urbantschitsch, of Vienna, as the real precursor of auditory re-education. His method was much discussed from the obvious point of view that the improvements related by him lacked all anatomical explanation, to which he replied some 40 years ago (much as Zünd-Burguet replies to similar criticism to-day) that the trial of his method would prove its success, and both workers consider that re-education may be found of value in nearly all deaf cases. A description of the electrophonoïd apparatus for the mechanisation of the human voice is accompanied by an explanation of the scientific principles upon which its claims are based, and is followed by a wise chapter upon the need for a scrupulously careful examination of the patient before deciding upon the advisability of applying the treatment; the chapter concludes with a model case-sheet, leaving spaces for charting the various findings under general and special history, response to tuning-fork tests, and acoumetry. The results of the practical application of the method are asserted to be pedagogic and therapeutic, the patient learning to listen, while the pathological conditions—certain of them, at any rate—are definitely ameliorated. A section dealing with the indications and contr indications for the method suggests that all cases deafness, not caused by a complete destruction the organ of Corti, may be suitable for audito re-education; and in amplification of this vie Mr. Yearsley quotes Dr. G. C. Cathcart's figure published in THE LANCET some two years ago,[1] ar adduces, also, the results in a series of 41 cases und his own care.

It is well known that differences of opinion ex as to the value of Zünd-Burguet's method. But view of the wise decision of the Otological Section the Royal Society of Medicine to set in motion international research into the subject of otoscleros this method is sure to come under review, so th Mr. Yearsley's exposition of it is timely.

LIFE ASSURANCE IN THE TROPICS.

A Pocket Guide to Medical Life Assurance. Seco edition, revised and enlarged. Compiled JEHANGIR J. CURSETJI, M.D., L.R.C.P., L.R.C. Chief Medical Officer, The Oriental Life Assuran Co. Bombay: At the Times Press. 19 Pp. 92.

THE problems of life assurance in tropical countr are in some ways more difficult than those in mo temperate and equable climates. Apart from t special diseases incidental to life in hot climates a the marked incidence of parasitic infections, t influence of racial habit demands close consideratio The statistical data available to medical officers insurance companies overseas are at present l complete and perhaps less reliable than those up which premiums for lives in this country are bas The small guide before us, which is now in its seco edition, has been compiled by Dr. Cursetji to affo help in these matters. He has had a considera experience as medical examiner in India, mo especially as chief medical officer to the Oriental L Assurance Company. His book is presented in t forms, one intended for head office use, the oth for the occasional examiner. The author stresses t importance of securing full evidence of identificatio since impersonation and fraud are not infrequent India; statements in regard to age and family histo are frequently found to be unreliable. On the oth hand, addiction to alcoholic drinks is unusual, thou other intoxicants, such as bhang, ganja, and opiu are extensively consumed.

It is difficult for chief medical officers in t country to assess the question of physique in Indi applicants. The data included in tables as an append to this book in regard to the average height, weig chest, and abdominal measurements of Indi assured lives should be very helpful. These tab comprise details scheduled in over 51,000 liv examined by the Oriental Government Securi Life Assurance Society during the years 1914 to 19 carefully scrutinised under the close supervision the actuary, Mr. Douglas Forrest. There is also table giving the expectation of life in Indian lives the basis of the mortality experience of the sa Company over a period of 39 years. These statist comprise details in regard to Hindus in different pa of India, Mohammedans, Parsees, and Indi Christians, by far the largest number being Hind Considerable attention is paid to the recording blood pressure as a part of the medical examinatio Most companies now insist upon a record of blo pressure, at any rate in lives over 50; the autho clear practical description of the methods of recordi the systolic and diastolic pressures should be valuab The importance of the moral hazard in life assura is discussed, and, although this is a question rath for the management, it is one upon which the medi examiner should be prepared to express an opinio

Dr. Cursetji is concise and practical throughou he has a real grasp of the special problems of insura medicine, and his guidance will be found helpf more especially to the occasional examiner.

[1] THE LANCET, 1925, i., 968.

THE LANCET.

LONDON, SATURDAY, NOVEMBER 26, 1927.

THE LORD CHIEF JUSTICE ON CRIME AND INSANITY.

LORD HEWART'S Lloyd Roberts lecture, delivered before the Medical Society of London on Nov. 16th, and reported at length in another column, was a characteristically lucid exposition of the strict legal view of the criminal responsibility of the insane. But nothing is more clear than that the Lord Chief Justice will take no step to reconcile the different opinions which he ascribed to the legal and medical professions. He repudiated even the slight concessions which the Atkin Committee recommended In 1922, when the trial of RONALD TRUE had given the public the impression that all was not well with the administration of justice in such cases, the Lord Chancellor appointed a Committee to consider what changes, if any, were desirable in the existing law, practice, and procedure relating to criminal trials where the defence of insanity is raised. The predominantly legal character of the committee was unmistakable. The chairman was Lord Justice ATKIN. Besides the two law officers of the Crown, the other members were Sir HERBERT STEPHEN, with his unrivalled knowledge of trials in the assize-court, Sir RICHARD MUIR (then Senior Treasury Counsel at the Central Criminal Court), Sir ARCHIBALD BODKIN (Director of Public Prosecutions), Sir EDWARD TROUP (lately permanent Under Secretary at the Home Office, perhaps the sole member of the Committee who had never prosecuted or defended a prisoner), Sir ERNLEY BLACKWELL (the Home Office legal expert), and the late Sir EDWARD MARSHALL HALL. The Lord Chancellor having thus appealed for guidance to a body which certainly could not be accused of any bias towards the medical view, the Committee presented a unanimous report; it recommended two changes in the law, changes which fell far short of the proposals of the Medico-Psychological Association, but which coincided reasonably with the more conservative suggestions of the British Medical Association. What, however, the Lord Chancellor's Committee recommended, the Lord Chief Justice's lecture disapproves.

The Atkin Committee's main proposal for the alteration of the law was the recognition of the defence of uncontrollable impulse. "It should be recognised that a person charged criminally with an offence is irresponsible for his act when the act is committed under an impulse which the prisoner was by mental disease in substance deprived of any power to resist." Lord HEWART will have none of this. He will allow no medical witness to say that A's impulse was uncontrollable for fear that B and C and D should relax the effort to control their own. Lord HEWART is frankly afraid of the medical witness. The crucial question at the trial would be whether the accused was acting under an irresistible impulse. "Would there be any material or guidance at all except the medical opinion which the prisoner might be fortunate enough to be able to adduce in his favour, contradicted by the medical opinion which might be offered on the part of the prosecution?" If the issue in a trial is a matter of medical testimony, why should that testimony be ignored? It is a common enough practice in a criminal court to take the evidence of the prison doctor as to a prisoner's state of mind. Is the opinion of other doctors who have made a special study of mental disease to count for nothing? The Lord Chief Justice discounts the Atkin Committee's recommendation because it named infanticide as a known example of uncontrollable impulse. The Infanticide Act, he says, has made special provision for this class of offence. But all that the Infanticide Act has done is to make it lawful to reduce the charge of child murder to some lesser offence, and, as our columns showed last week, the statute withholds even this slight measure of relief if the infant is four weeks old. The Infanticide Act can scarcely be accepted as a sufficient substitute for the Atkin Committee's recommendation that the defence of uncontrollable impulse be legally recognised. The failure to implement the Committee's main recommendation extends also to its second and minor proposal for the alteration of the law. It recommended the abolition of the meaningless verdict, "Guilty but insane." As the Committee's report pointed out, this verdict is one of acquittal; the word "guilty" in criminal trials should connote criminality only; the word "insane" indicates that the criminality was negatived by irresponsibility. On any showing, this illogical verdict should be banished from our courts; the necessary legislation is presumably denied because of the official view that no change could be a change for the better.

LABORATORY BENEFIT.

THE recent annual conference of insurance committees, held at Harrogate, agreed to press for the inclusion of expert medical advice and treatment and in particular of laboratory service as part of the medical benefit under the National Health Insurance scheme. This, it will be remembered, was one of the recommendations of the Royal Commission, and the conference expressed satisfaction at the steps already taken on their own initiative by certain insurance committees to provide for pathological investigation. It is a healthy sign of awareness on the part of insurance committees throughout the country to the needs of insured persons that these matters should have engaged the attention of the conference; but the fact that schemes, such as that recently introduced in Lancashire, are being promulgated by individual committees is not without its drawbacks and dangers. In a service such as national health insurance it is desirable for the machinery to be standardised. Local differences in practice must lead to increased complexity of administration and consequent unnecessary labour. That was fully recognised by the council of the National Association of Insurance Committees, which, while taking cognisance of sporadic arrangements, insists that nothing short of a laboratory service established upon a national basis can be a satisfactory complement to the national medical service.

The only laboratory activity at present recognised by the health insurance system is the manufacture of vaccines. A panel practitioner may send a patient to a pathologist for a vaccine and for the preparation of this a reasonable payment will be made; no funds, however, are provided for the performance of any investigations directed towards ascertaining whether a vaccine or some alternative line of treatment is desirable. The pathological laboratory has of late years become so

essential an instrument of diagnosis that it is not surprising that efforts have been made in many parts of the country to remedy the shortcomings of the health insurance system in this respect. A simple and obvious expedient is for the practitioner who requires the aid of a laboratory in the diagnosis of his patient to send the said patient to a pathologist ostensibly for the preparation of a vaccine, but actually that the pathologist may make such investigations as may be necessary, the pathologist on his part charging a fee ostensibly for the preparation of a vaccine, but actually for the examinations performed. This subterfuge can hardly be regarded as satisfactory, but it is the line of least resistance for the active and intelligent practitioner in many parts of the country. Somewhat less surreptitious arrangements, inaugurated at the instance of various insurance committees, have been arrived at in certain parts of the country. Of these arrangements there are three general forms of which typical examples are in force in Lancashire, Cheshire and Flintshire, and the West Riding of Yorkshire.

(1) Under the Lancashire scheme the Wigan Royal Infirmary has agreed in consideration of a payment by the insurance committee of £500 to supply outfits for the collection and transmission of pathological specimens to all panel practitioners in the area of the committee and to perform all pathological investigations for insured persons in the area without further charge. (2) The Cheshire and Flintshire committees have an arrangement with the Chester Royal Infirmary by which the latter undertakes to perform pathological investigations for insured persons at a reduced rate; a similar scheme is in existence in Wolverhampton where it was inaugurated by the Wolverhampton and Staffordshire General Hospital. In this type of scheme the doctor sending in material assumes responsibility for the payment of the fee, which he may or may not recover from the patient. (3) In the West Riding of Yorkshire a scheme was inaugurated some years ago by which the county council laboratory offered to provide reports of pathological material for insured persons, free of any charge, in addition to the service specifically provided out of the public funds.

Of these three systems the first two involve arrangements between the insurance committees and those hospitals to which the patient will probably be admitted if in need of hospital treatment. This coöperation between the general hospitals and the insurance service offers obvious advantages, one of the greatest of which is the provision of a steady flow of paid work which would enable many voluntary hospitals, not now able to do so, to maintain a pathological department, and would assist those which already have them to increase their efficiency. Such departments are expensive to run and demand expert direction, which must be paid for. It is probable that few measures would tend more to raise the standard of all our medicine than the establishment of a network of pathological departments in connexion with the voluntary general hospitals. Many such, of course, exist at the present day; they serve as rallying points for the medical activity of their neighbourhood in so far as investigation and research are concerned. Elsewhere the newly settled practitioner too often finds himself cut off from the facilities for clinical investigation which he enjoyed in his teaching hospital, and his work is accordingly hampered. Few practitioners are out of reach of a general hospital, but many of these are without adequate pathological departments; this is a state of affairs which is being remedied as rapidly as possible in the circumstances, but it would be even more readily remedied could the governing bodies of voluntary hospitals be assured of a steady, even though small, income for their pathological departments when established. The system inaugurated in the West Riding appears to involve the use of public money for a purpose for which it is not specifically provided, and, if it became general, would lead to the locking up of a large amount of clinical data where they could be of no further use. Commendable as they are, the Lancashire and Cheshire and Flintshire schemes are in some respects open to grave criticism. As regards the former the difficulties of estimating the lump sum which shall represent an adequate repayment for work performed are obvious; as regards the latter the fees charged to insured persons must in the nature of things, so long as no financial responsibility is assumed by the insurance committee concerned, afford no adequate remuneration to the hospital undertaking the work. There is no dissentience as to the need of a pathological service for insured persons; there is grave danger that if the decision is much longer deferred disturbing differences in local practice in its provision may grow up. The time would appear to be ripe for concerted action.

MEDICAL WORK OF THE MINISTRY OF PENSIONS.

ON Saturday last, at the annual dinner of the Sussex Medico-Chirurgical Society, the Minister of Pensions, Major G. C. TRYON, spoke interestingly upon the urgent need for accurate medical knowledge that had been revealed in the course of the work of the Ministry. All who know how extensive and valuable that work has been, and still is, will endorse his statement that even amongst doctors there are too few who realise either its amount or the difficulty of the circumstances in which it has been done. How often, for example, that work has been of pioneer nature, because the results of war were outside the ordinary experiences of either civilian or doctor. An example given by Major TRYON to illustrate the provision of his department was a particularly apposite one, for he pointed out that, long before the recent Royal Commission on Lunacy made its report, the Ministry of Pensions had established hospitals for borderland cases; while as an example of promptness in the employment of medical discovery we are reminded that the Ministry set aside special wards for the effective treatment of diabetes as soon as the properties of insulin became known.

The first duty of the Ministry of Pensions, when it came into existence, was to investigate and decide the exact nature of the disability of any applicant—the extent to which that disability affected the life of the subject, for on this must depend the just assessment of compensation. The problems that thus presented themselves before the medical boards, which were established promptly throughout the country, were not easy, for in many directions there were no scientific precedents upon which decisions could be based. And the terms, "entitlement" and "assessment," were themselves novel, so that the boards were dealing, in their early days, with conditions where accepted knowledge proved no general guide and were expected to conform in their judgments with an unfamiliar scheme of categorisation. Further uniformity of procedure had to be ensured throughout the country. This was guaranteed by the coöperation on the boards of whole-time medical officers, specialists, and general medical practitioners, so making up an average of medical opinion, and that the average was capable of even-handed justice

endering its verdict is proved by the emergence of he boards with credit from considerable hostile riticism—criticism that was natural, no doubt, ecause of the sad quality of the instances of ardship under discussion, but which was none the ess usually unwarranted.

Following "entitlement" and "assessment" came reatment when the needs of the Ministry were otoriously greater than could be met by the ospitals of the country, civil and military, so that he Ministry was compelled to establish a network f hospitals and clinics throughout the country for he orderly development of this work. Major TRYON aid: "As the number of cases requiring treatment iminished, it became possible to concentrate cases f similar character in a few specially equipped stitutions—e.g., cases of dysentery and other ropical diseases; paraplegics and epileptics. The iscellaneous category of war neurosis resolved itself s time went on into the definitely insane, the borderne case, the true neurasthenic, and the mentally efective. For all these classes special arrangements ere made. For the insane the Ministry established close liaison with the Board of Control and eventually ranged for the allocation of separate wings in two rge mental hospitals for the treatment of those nsioners whose mental state permitted them to ppreciate the special accommodation provided. In ddition, patients discharged on trial are specially ccommodated for a time in Ministry hospitals, so s to minimise the difficulties of sudden transfer om asylums to civil life." The Minister's summary no way exhausts the story of combined and indidual effort undertaken for the treatment of penoners. The Royal Colleges, the Medical Research ouncil, and many distinguished clinicians have been gaged throughout in advising and collaborating ith the Ministry, and the need remains for a conuance of their labours. According to the estimate the Ministry of Pensions 3750 beds are still required the hospitals of the Ministry, while 5250 outtients are under its care. There is no room for laxation of activity, but the results achieved give od promise for the future.

ELIZABETH GARRETT ANDERSON HOSPITAL.—Over 000 was subscribed at a dinner in London last week in t of the fund for the extension of this hospital.

BIRMINGHAM HOSPITALS.—The new surgical block 120 beds which has been added at a cost of £100,000 to e Queen's Hospital was opened last week by the president, Charles Hyde, Bart. The additional accommodation nsists of three large operating theatres, six wards, two rilising rooms, three anæsthetic chambers, and conmitant apartments. The walls of two of the theatres e covered with grey opaque glass; in the third the glass mottled green. The board have had to realise the whole the hospital's available investments, but a further £15,000 needed to cover the capital expenditure, while the addins involve an increased annual outlay of £15,500.—The ort of the Hospitals Committee of the Birmingham ard of Guardians emphasises the heavy increase that has ken place in the work of the Dudley-road and Selly Oak spitals. In-patients have grown by more than 3000 to 989. At Dudley-road the out-patients have nearly abled; at Selly Oak they have exactly doubled. These ures eclipse all previous records—indeed, Dr. F. W. Ellis, chief medical officer, states that the continued increase ring the last seven years "probably creates a record for y hospital administration in the country." Major R. ey, assistant to the treasurer of the Royal Berkshire spital and organiser of the contributory scheme of that titution and the associated hospitals, has been appointed anising secretary of the Birmingham contributory scheme ich comes into operation on Jan. 1st.

Annotations.

"Ne quid nimis."

A YEAR OF CANCER RESEARCH.

IN the twenty-fifth annual report of the Imperial Cancer Research Fund Dr. J. A. Murray presents a brief résumé of a year's work at the laboratories of the Fund which he directs. Tumour material from these laboratories has as usual been supplied to assist investigators all over Europe, some of whom have responded with a similar courtesy. Ten papers by members of the staff have appeared in scientific journals, amongst them the Linacre lecture on Multiple New Growths, which we printed last month. Dr. Murray specially notes an effort made to meet the complaint frequently launched against laboratory workers on cancer research that they so seldom provide general summaries of the state of our knowledge suitable for the educated layman. In response to an invitation Dr. W. Cramer prepared such a summary which was published in the *Nineteenth Century and After* for April and May last. Only those who have attempted the task, writes Dr. Murray, can have any idea of the difficulties involved in conscientious work of this kind. The constant wariness which must be exercised to secure accuracy without the use of technical terms, or ordinary words which have acquired a special technical significance, makes the preparation of such articles a time-consuming labour. Two matters of special interest are mentioned at greater length. The work under the Atholstan grant at the Stroud laboratory has advanced sufficiently to permit of publication. In one paper Dr. A. M. Begg dealt with the successful propagation of very slowly growing fibro-sarcoma of the fowl. This was at first thought to be a benign tumour, but the occurrence of metastases in one of the propagated tumours relegates it definitely to the malignant category. This interesting observation draws attention to the close similarity between the benign and malignant tumours. In his second paper [1] is described a filtrable endothelioma of the fowl easily propagated by grafts of living tumour tissue and leading to the formation of large masses of new growth with metastases in internal organs and in superficial lymphatic glands. In addition growths can be produced by the injection of dried material and of cell-free filtrates. In this respect, writes Dr. Murray, the tumour behaves in the same way as the sarcomata of the fowl described by Rous and others, and Dr. Begg has been able to carry out inactivation and reactivation experiments on the model of those devised by Dr. Gye with the Rous tumour, with similar results. The tumour used by Dr. Begg differs in structure from the fowl sarcomata previously described, and provisionally it is regarded as arising from endothelial cells of the blood-vessels. A visit paid by Mr. H. G. Crabtree and Dr. Cramer last summer to the Kaiser Wilhelm Institute of Prof. O. Warburg in Berlin leads Dr. Murray to include in his report a short statement of Warburg's biochemical conception of the nature of cancer. The metabolism of carbohydrates supplies the chief energy-yielding processes for all the tissues of the body. Normal tissues obtain energy for growth by a pure oxidation process resulting in the production of carbon dioxide and water. If they are deprived of oxygen they fail to survive, on account of this restriction in their method of utilising carbohydrate. Tumour tissue, Warburg finds, has not merely this capacity to break down carbohydrates by normal respiratory processes, but also, when deprived of oxygen, can derive sufficient energy for survival by breaking down the carbohydrate (in the manner used by yeasts)—i.e., by a splitting process yielding lactic acid as the final end-product. Even when the supply of oxygen is not restricted tumour tissue makes use of both the oxidation and splitting processes, thus betraying a mode of metabolism

[1] THE LANCET, 1927, i., 912.

which is characteristic, and differentiates it from all other normal tissues, with the curious exception of the retina. On this basis Warburg suggests a hypothesis accounting for tumour origin. He conceives that normal tissues are not homogeneous but consist of a mosaic of cells, growing and surviving by oxidative breakdown of carbohydrate, interspersed with isolated cells which have the dual capacity of utilising carbohydrate by the oxidation or splitting processes. Under abnormal conditions, when any group of cells suffer an oxygen deficiency, the chances of survival are greatly in favour of the latter cells, which then provide the nucleus for subsequent development of malignant tissue, which retains this characteristic method of carbohydrate metabolism. The total expenditure of the Fund during the year amounted to just short of £12,000, of which office expenses absorbed less than 9 per cent.

THE USE OF WHITE LEAD IN PAINTING.

THE Lead Paint (Protection Against Poisoning) Act was passed on Dec. 15th last. Under Section 2 of this Act women and young persons were prohibited from painting buildings with lead paint as from the 19th day of this month except in the case of women so employed at the date of the passing of the Act. Two exceptions were, however, made to this prohibition in favour of (1) persons employed as apprentices, and (2) women or young persons employed in special decorative or other work, not of an industrial character. An Order just issued by the Home Office now makes these exceptions more precise. Its effect is to relax the prohibition under Section 2 of the Act (1) in the case of any male young person employed under an indenture of apprenticeship or under an established custom of regular apprenticeship (subject to the condition that his name, age, and the date on which he was first engaged as an apprentice are entered in a separate list attached to the register of employees which the employer is required to keep); and (2) in the case of any woman or young person employed in "the execution of wall or ceiling paintings, or any similar work of decorative design." Nothing in this Order, it should be noted, will relieve any employer from the obligations imposed by the regulations contained in Section 2 of the Women and Young Persons (Employment in Lead Processes) Act, 1920.

Those who would gain a concise view of the present use of white lead in the painting industry should refer to a volume [1] just issued by the International Labour Office at Geneva, wherein is brought together under one cover information gathered from all over the world. Previously the only volume claiming to cover similar ground was that compiled by F. L. Cantineau in 1921 [2]; but this was written definitely to present the case against white lead. The new volume is the outcome of the discussion which took place at the third session of the International Labour Conference, held at Geneva in 1921, when it was unanimously decided that delegates should advise their Governments to take steps to prohibit the use of white lead in paint used on the interior of buildings, while adopting stringent regulations where paint containing lead is used on the outside of buildings. The volume opens with an historical sketch of the movement against the use of white lead; it seems that the campaign originated and has been followed up by countries where zinc white, the great rival of white lead, is manufactured, while the leading opponents have been the countries where this material is not manufactured. The medical aspect of the question is then fully stated. The risk to which painters are exposed arises nearly entirely from the inhalation of lead-containing dust generated when painted surfaces are rubbed down dry, although the possibility of danger from inhaling turpentine vapour cannot be excluded. Statistical data indicate that the lead risk for painters is not confined to one country or one climate; it is widespread. Even the advocates of the continued use of white lead in paint allow the existence of the risk. They claim, however, that dry rubbing down can be abolished in favour of using waterproof sand-paper; recent experience indicates that the hopes entertained from this innovation are not being entirely fulfilled. Technical information is given as to the value of different paints and their costs; the economic aspect of the problem appears to be somewhat in favour of white lead. Next follows a discussion of legislative procedure adopted in different countries; two courses are open, either prohibition or strict regulation of the use of lead. In this and other sections of the volume the relevant information is stated fairly and without bias. Many of the facts, technical details, and health statistics are derived from work done on behalf of different committees, by experts in Great Britain and in other parts of the Empire. Thus we learn how two committees appointed in 1911, one to consider the danger arising from lead in paint used upon buildings and the other upon coaches and carriages, both reported in favour of prohibiting the use of lead in paint; that simultaneously with the holding of the conference at Geneva in 1921, a further committee was appointed which recommended that the conclusions arrived at in Geneva should be adopted; and that the Government, with this technical advice coming from its own experts before it, saw fit to adopt a code of regulations made under the Factory Act for the painting of coaches and carriages, and another code under the 1926 Act already mentioned. The book contains a number of valuable tables and useful graphs, and includes among its appendices the official report of the 1921 Conference.

THE STORY OF A PHARMACY.

IN the year 1715 Silvanus Bevan, apothecary, and afterwards Fellow of the Royal Society, took over the lease of premises in which the poet Pope was born. The pharmacy thus established in a small court off Lombard-street not only enjoys prestige as the oldest of its kind in London, and as the cradle of a business of world-wide scope, but also has sent out distinguished workers into the fields of pharmacognosy, botany and chemistry. Most of the early proprietors were members of the Society of Friends; and in the troubled international conditions of the late eighteenth century the formation of an overseas connexion was not accomplished without many delays and hesitations occasioned by privateers, conscience, or both. We find, for instance, one of the Bevans writing to a certain Dr. John Gill, of Barbados, in 1779: "... the books none specified are omitted that are in print except 'Chesterfield,' the 'Polite Lady,' and the 'United Friends.' I hope thou wilt excuse the freedom. From what I have seen of the first of these I know it is calculated to recommend folly, vanity and vice . . . ." The main interest, however, of the story, so well told by Mr. Cripps,[1] lies in the contributions to various sciences made by men who were either partners in the firm or near relatives. Daniel Hanbury, joint author with Flückiger of "Pharmacographia," was an accurate, highly-trained observer in pharmacognosy and in botany: he accompanied Sir Joseph Hooker to Palestine in 1860, and during the last few years of his life collaborated with his brother, Sir Thomas Hanbury, in stocking the garden at La Mortola, which is still one of the glories of the Italian Riviera. Botanical investigation has also been carried out by Mr. F. J. Hanbury, the owner of a remarkable rock garden in Sussex. From 1797 to 1806 William Allen, then head of the business, had as partner Luke Howard, who afterwards founded the

[1] White Lead. (Data collected by the International Labour Office in regard to the use of white lead in the painting industry.) Studies and Reports, Series F, Industrial Hygiene, No. 11, Geneva, 1927, pp. 409. 8s.

[2] La Céruse. Paris and Liége. 1921.

[1] Plough Court: The Story of a Notable Pharmacy, 1715–1919. Compiled by Ernest C. Cripps, M.P.S. London: Allen & Hanburys, Ltd. 1927. Pp. 227. 10s. 6d. (to medical practitioners, 5s.).

portant manufacturing concern now identified with e chemicals, and especially with quinine. During ose nine years many small-scale experimental ocesses were tried at Plough-court, and incidentally was realised, with the assistance of two outbreaks fire, that the heart of the city was not the ideal ace for the production of chemicals. John Thomas arry, who was admitted a partner in 1818, had a ghly individual method of dealing with such oubles. Finding, one Sunday morning, that smoke s issuing from a cupboard, he pasted strips of paper er the crevices and sat down to read his Bible, rrectly estimating, as it turned out, that the supply air would soon be exhausted. Barry is chiefly nembered by his invention of evaporation in cuo, the details of which were given in a paper esented to the Medical and Chirurgical Society in 19. William Allen, Barry's senior partner, became degrees a figure of European fame. A friend of the ke of Kent, Queen Victoria's father, he took a ding part in religious and humanitarian projects ich had the Duke among their patrons, and velled extensively to promote their success. The ume in which the story is told is admirably printed l illustrated, although it is odd that none of the npilers (of whom there have been three) has seen to correct "the Linnæan Society" and "Sir mphrey Davy." But the difficult transition from record of past achievement to the description of sent methods of manufacture has been accom- shed with discretion.

THE INVESTIGATION OF OTOSCLEROSIS.

AT a recent meeting of the Section of Otology of Royal Society of Medicine the President, Mr. S. Fraser, delivered an interesting address upon sclerosis, in the course of which he made a posal for a national investigation of the condition, ing that, while the problems appeared to concern logy alone, for their satisfactory evaluation the peration of other branches of the medical profes- n was required. "Some medical men failed," he l, "to diagnose the disease when confronted with it. en he began the study of otology in 1904 he spent ny useless hours in the hospital in testing patients o were supposed to be suffering from chronic is media, and who showed no improvement after ldle-ear inflation. It had since dawned on him that sclerosis was not an uncommon disease, and he nd that 10 per cent. of his patients suffered from it. he victims of it had been exclusively old, or past ldle life, it would not be so serious, but most of cases were in young people. Females were most cted, in the proportion of three females to one e. At least 50 per cent. of the subjects of it gave istory of deafness in the family. Microscopical mination carried out in early stages showed areas pongy bone in the labyrinthine capsule and at the erior margin of the oval window. Some of the es had also fragility of bones and blue sclerotics. Albert Gray's estimate was that 1 in every people suffered from otosclerosis. In its produc- n the main fault seemed to lie in some abnormality ndocrine glands, but inquiry had yet to go a long before any association could be established ween this disease and malformation or inadequacy ductless glands." Mr. Fraser went on to point that careful researches on the subject were now ceeding in America, but he deprecated waiting the American results, believing that coöperation better than competition, and that an international iry would be the most potent means of arriving the truth. The Otological Section thoroughly orsed the proposal which his words led up to—nely, that a central committee should be formed the Section to coördinate and organise research of vide character, the suggestion being to enlist help of the large hospitals and teaching ools of the United Kingdom. The proposal supported by Mr. Sydney Scott, Dr. Kerr e, Sir William Milligan, Sir James Dundas-Grant, Mr. G. J. Jenkins, Mr. Herbert Tilley, Mr. J. F. O'Malley, and Dr. Dan McKenzie among others, and the council of the Section was empowered to act in accordance with it.

HEALTH EDUCATION OF THE PUBLIC.

Sir Arthur Keith, in an admirable after-dinner speech which we report elsewhere (p. 1149), remarked on the real difficulty of getting through to the public with scientific medicine. Year by year young men and women, equipped with the spirit and knowledge of their craft, go out into the world to succumb to the craving for magic which lies deep in human nature. The British Association, of which he is this year President, has for its central aim to share the knowledge of trained observers with the public at large. Another agency for the same purpose is the League of Red Cross Societies, which publishes a monthly review in three languages, of which the English edition is called *The World's Health*. The contents of this review are not copyrighted, reproduction of the articles being welcomed, provided that due acknowledgment of their source is made. A special number for October deals with certain problems of health education. Dissemination of knowledge, as Sir George Newman lays down in a foreword, is useless unless it is in a form readily understandable by those to whom it is addressed. The channels along which knowledge should be made to flow are five in number: (1) sanitary environment; (2) healthy race; (3) resistant body; (4) methods of reducing mass infection; (5) early diagnosis and treatment of disease—and the field for public education in these matters is boundless in extent and full of opportunity. Dr. René Sand, who advises the League on popular health education, remarks that up to quite recent times it was possible for a man to assume high responsibilities in mercantile life without having the slightest notion of the importance of hygiene in industry; and for citizens to found families while being quite ignorant of domestic or sex hygiene. He deprecates the use of technical arguments in matters of diet, and advocates simple advice along the lines of what might be called intelligent omnivorousness. The place par excellence for health education of this kind is in the schools. It is a side of the work which the school medical service, as at present constituted, cannot adequately tackle, and there is urgent need to improve the standard of health knowledge among the teaching staffs in all the schools of the country, and, having done it, to send them out with a real desire to teach what they know. Twenty minutes a week devoted to the simple things of health in every school would within ten years do away with the need for most of the posters and pamphlets which Dr. Sand deals with so well. Any practitioner having to deal with young persons in industry will realise that one of the most hopeful ways of attempting to bridge the "gap" from 14–16 years of age in the medical benefit is so to educate children at school in the care of their health that they will be able in no small measure to bridge the "gap" for themselves by the simple method of avoiding sickness. Common-sense rules, devoid of fussiness or of the technicalities which Dr. Sand condemns, will, if inculcated at school during the plastic age, last as an abiding asset through life. There are many excellent black-and-white reproductions of various health propaganda posters in this number of *The World's Health*, together with a coloured inset of posters from different industries in all parts of the world. These are chiefly attempts to educate workmen in accident prevention. The art of producing attractive posters is comparatively new, and the specimens here given are good of their kind; but it is necessary to be aware of certain drawbacks to their use. Employers may spend much money on these things and forget the less spectacular but more important side of health education—namely, the written and, to a still greater degree, the spoken word. There is one curious omission from this health educational number—at

a rough computation 20 per cent. of the loss to industry in sickness is due each year to the common cold, which many believe to be largely preventable by more careful attention to ventilation and proper working temperature.

AVERTIN.

SOMEWHAT conflicting reports come from Germany regarding the recently introduced narcotic, avertin [1] (E 107, tribromethylalcohol). Some surgeons find that the anæsthesia it produces is as efficient as any that they know, besides being more pleasant, whilst others declare that the dangers of avertin put it out of court as a means of anæsthesia in practice. Experience is not yet very wide—some 3000 cases form the largest series yet reported—but it is probable that a definite generally held opinion will eventually be forthcoming as to the advisability of adding avertin to the commonly used anæsthetics. British anæsthetists would naturally like to play a part in the formation of this opinion by investigations of their own, and we are glad to know that through the zeal of Dr. Fritz Eichholz and the good offices of Dr. H. H. Dale, a certain amount of avertin is likely to be available in the near future for a limited number of clinical trials in this country. It is obvious enough from what has already been done that the solution of avertin requires of the anæsthetist special care in its preparation and testing shortly before use, and that the risks associated with all forms of rectal anæsthesia are certainly no less, even if they are no greater, with avertin than they are with ether.

WATER DIVINING.

Prof. J. W. Gregory, the well-known geologist, in a paper read on Nov. 17th at the Public Works, Roads, and Transport Congress, gave an historical account of the alleged art of water divining with descriptions and summaries of critical tests to which the method has been subjected. The use of the divining rod goes back to ancient times, and even to-day public bodies employ diviners to recommend sites for well-sinking. Some supporters claim that the rod responds to external physical influence, and the diviner himself usually denies exerting any muscular force when the rod is strongly moved. That such a widespread and powerful influence should exist and be incapable of other experimental demonstration is difficult to reconcile with scientific knowledge, and all the movements of the rod can be produced by anyone who cares to learn how to hold it. An alternative view admits the part played by muscular action, but retains a claim for the mysterious by postulating a kind of second sight, by which the diviner senses the presence of any object for which he is searching, such as oil, metals, buried treasure, letters in an envelope, future events, underground water, or some special person. This frankly places the divining rod in the same category as planchette and other spiritualist mechanisms. A third explanation brings such mechanisms into relation with other phenomena that have already been investigated by medical psychologists. The theory of dissociation of consciousness, which conforms to the scientific canons in so far as it usefully summarises many happenings and does not clash with anything in the general body of human knowledge, allows us to regard the water diviner as possessed of information and powers of deduction which he unwittingly applies in producing movements of the rod, just as the hysteric will, under the influence of motives not fully conscious, produce muscular movements or paralyses which he declares to be independent of volition. Whilst it does not involve the accusation of conscious fraud, this explanation denies to the diviner any knowledge that he could not attain by the exercise of his ordinary senses. Prof. Gregory describes many tests in which such knowledge failed to manifest itself. It is freely admitted that water is often found by sinking where the rod has given indications of its presence, but for obvious reaso negative findings are rarely tested, and he giv examples where only the hits were counted. T diviner is often ludicrously astray when he is test over areas where the distribution of water is accurate known. Diviners who claimed to detect undergrou oil were tested at the research station of the Angl Persian Oil Company and their results accorded wi rather unlucky guesswork. Prof. Gregory fears th it may seem disrespectful to those who believe in t divining rod to compare it with such an obsole habit as witch-hunting, but he remarks that t human mind in all people and amongst all ages h many features in common and is greatly influenced coincidences and unexplained phenomena. If wat divining really has such close affinities with witchcra and fetish as he believes the widespread trust in t method is rather disconcerting in a scientific age.

PROF. PIRQUET'S VISIT.

THE visit to London of Clemens Freiherr von Pirqu has given the medical profession an opportunity f attaching more personal characteristics to the epony of a tuberculin reaction and the originator of a wor wide system of dieting children. There are son apparently, who are unaware of an intervening peri in Dr. Pirquet's career, when he occupied the ch of pediatrics at Johns Hopkins University and infus an element of freshness into child study in Ameri Dr. Pirquet (as he prefers to be called) has recen been elected president of the "Save the Childre International Union at Geneva, and in this capac he addressed, while in London, a large gathering supporters of this Fund. He gracefully acknowledg the help given by this country to the children Vienna during the famine years, and attribut directly to this foreign help the fact that Vie itself is now doing more for its children than e before. Timely help in the crisis of their infancy l brought the children back to an almost normal st of health. Rickets, then extraordinarily preval in Austria, seems likely to disappear there entir within the next few years, and Dr. Pirquet is optim enough to believe that the same may be true tuberculosis in a quarter of a century. Sum diarrhœa among children, he said, was also d appearing in many countries; only in France the disease still rife, not because the French h child-life in any less esteem than we do, but beca of the prevailing custom to send the children i the country during the summer, where they dr unsupervised milk. He put in a plea for regard the common cold as highly infectious to infa many of whom, he thought, died from pneumo arising from a simple cold in the head. His fi remark, that possibly not more than 2 per cent. infantile deaths are unpreventable, was coup with the practical suggestion to concentrate on distr where a specially high mortality is recorded.

TREATMENT OF HICCUP WITH CARBON DIOXIDE.

IN a recent paper [1] Dr. R. F. Sheldon discusses treatment of hiccup by the inhalation of car dioxide. Hiccup is a spasmodic contraction of diaphragm, and its cause is probably abnor stimulation of the respiratory centre, either dire or through afferent fibres in the phrenic nerve. stimulus to the centre which produces nor breathing is an increase in the tension of car dioxide in the blood, and 5 per cent. of CO_2 in inspired air is more effective than anything else increasing the depth and strength of respiration. W this maximal stimulus it is reasonable to suppose t abnormal or lesser stimuli causing hiccup will ineffective, and that respiration will be uninterrup In administering CO_2 for this purpose Dr. Shel used the Henderson-Coburn machine in hospital

[1] THE LANCET, 1927, i., 718, 1037, and 1266.

[1] Jour. Amer. Med. Assoc., Oct. 1st, p. 1118.

ıe Gwathmey anæsthesia apparatus (Seattle model) h's private practice; both of them show the pproximate percentage of CO_2 in the air given. He escribes 11 cases. In seven of them hiccup came on fter a laparotomy; in one it followed an operation for bdominal hernia; in two it occurred during and after as-and-oxygen anæsthesia; whilst the remaining ase was one of the epidemic type. Carbon dioxide as inhaled for periods of from 1 to 20 minutes, eing breathed until the hiccup was controlled, which as usually within two to five minutes. Inhalation as resumed if hiccup returned, and the plan was to o on with the administration of CO_2 till there was o further recurrence. Success is reported in 10 out of cases. Most of the patients welcomed the treatment it produced no discomfort, although in one case halations were given regularly for five days (the eatest number in a day being 36), after which the ccup ceased permanently. Unfortunately the CO_2 uses an increase in blood pressure and respiratory fort and some exhaustion, so that Dr. Sheldon nnot advise its use for very debilitated patients. ieoretically, too, it may increase the chances of emorrhage after abdominal operations, especially ıen the stomach and gall-bladder are involved; but this respect the sudden contraction of the aphragm in hiccup is probably more dangerous than ep breathing. In order to control hiccup during æsthesia carbon dioxide may be given by the simple ocess of making the patient rebreathe his expired air.

ORTHOPÆDIC TREATMENT IN LONDON.

ORTHOPÆDIC surgery became prominent in the ddle of the nineteenth century because such erations as tenotomy and osteotomy were relatively e in pre-antiseptic days, and because the correction deformities could be largely carried out by chanical and non-operative means. When anti- otic and aseptic principles had reduced the dangers every kind of operation, the keen surgeon was awn to other lines of work, so that many of those o practised orthopædics were old-fashioned, relying ll on the simpler operations and on mechanical thods and failing to follow the more progressive nd of modern surgery. It is only comparatively ently that this important branch of treatment has ne back into its own.

In 1909, when the Royal National Orthopædic spital built its out-patient department, the new ommodation seemed to allow room for con- erable expansion. It was not expected that within years the hospital's work would increase more n fourfold and that considerable extension would ain be needed. The increase in work has not been e simply to an increase in the number of cases of same class as came to the hospital 25 years ago, t rather to an enlarged view of what constitutes a e suitable for treatment, and to a recognition of fact that the orthopædic surgeon, if he is a com- ent operator, is the right person to deal with most the surgery of the limbs, including the disabilities ulting from injuries. The new department, whose ening by the Lord Mayor we report on p. 1158, s long been under consideration, though the plans l building were delayed first by the war and then lack of money. Besides a handsome waiting-hall, sets of consulting rooms with operating theatre l plaster room, and ample offices for the almoners, contains large and well-equipped workshops which ble the hospital to make not only its own surgical liances for individual patients but also the various ints and frames, used as mechanical aids to treat- nt. The old out-patient department has been verted for use for massage and electrical and er forms of physical treatment, and there is a ge new radiographic department and photographic dio, besides fresh quarters for the resident staff, ich were badly needed. The in-patient department the hospital has also long proved inadequate, but ne years ago a decision was wisely made that no ension of in-patient work should be made on the Great Portland-street site. A small country branch had been established at Brockley Hill, Stanmore, only 10 miles from the parent hospital. Fortunately, a very large area around this has been purchased by the hospital, and simultaneously with the building of the new out-patient block a start has been made in building an entirely new country hospital on this site. So far an operating block, consisting of well-equipped theatres with two adjoining wards to house the patients before and after operation, has been completed, as well as one large, open-air block, and a building for kitchen and administrative purposes. It is proposed that additional open-air blocks shall be built as they are required and as financial conditions permit.

The Lord Mayor, in his opening address, called attention to the importance of extending orthopædic work to the treatment of adult cripples, and particularly of those suffering from industrial accidents and chronic disabling disorders of the joints. In the work of the hospital these branches of work are becoming more and more important. As the general organisation for the care of crippling conditions in childhood improves throughout the country, the children are treated earlier and more satisfactorily and require on the whole less in-patient accommodation, although the treatment of tuberculous disease of the joints still necessitates the upkeep of a large number of beds at the country branch. It is to be hoped that these extensions of in-patient accommodation will in the future enable the hospital to take more and more of the adult cripples besides carrying out the work that it has already done in the past for children. Heavy expenditure has been involved and, although Prince Henry was able to announce at the opening ceremony that the new out-patient department is paid for, the buildings at Brockley Hill are not in the same happy position, and a debt of £40,000 will remain outstanding upon these, unless it can be met by additional gifts.

WE regret to announce the death of Mr. Richard Anglin Whitelocke, lecturer on surgery at the University of Oxford, which occurred on Saturday last, Nov. 19th, in his sixty-seventh year. Mr. Whitelocke had been in bad health for some time.

THE King has approved the appointment of Sir Farquhar Buzzard to be Regius Professor of Physic in the University of Oxford in succession to Sir Archibald Garrod, who will shortly retire. Sir Farquhar Buzzard is physician to St. Thomas's Hospital and has been Physician Extraordinary to the King since 1923. He was created a Knight Commander of the Victorian Order at the beginning of this year.

EXETER ORTHOPÆDIC HOSPITAL.—The Duchess of York last week opened an orthopædic hospital for Devon and Exeter in the capital city of the county, which has been erected at a cost of £25,000, and dedicated a "Princess Elizabeth Cot" subscribed for by women and girls. The operating theatre block has been presented and equipped by the Rotary Club of Exeter.

WEMBLEY HOSPITAL STAFF.—The following have been appointed to the consulting staff of the new Wembley Hospital, which will be opened in the New Year: honorary consulting physicians, Sir John Rose Bradford and Dr. C. E. Goddard; consulting physicians, Dr. Batty Shaw and Dr. Norman Hill; consulting surgeons, Mr. E. K. Martin and Mr. P. H. Mitchiner; consulting surgeons for the diseases of women, Dr. J. W. Bell and Dr. Gertrude Dearnley; consulting surgeon for diseases of the eye, Mr. R. C. Davenport; consulting surgeon for diseases of the throat, nose and ear, Mr. Douglas Robertson; consulting physician for diseases of the skin, Dr. A. C. Roxburgh; consulting anæsthetists, Mr. A. F. Potter and Mr. H. N. Webber; consulting pathologist, Dr. H. A. Osborn. The consulting radiologist has not yet been appointed. The local staff will comprise the whole of the medical practitioners of the Wembley area.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

CCLI.

THE TREATMENT OF SEA-SICKNESS.

THERE is a well-marked variation in liability to sea-sickness shown by different age-groups, sex-groups, and individuals. Infants under 1 year of both sexes are practically immune from this complaint, possibly owing to the non-development of their sense of balance. An adult could never experience with impunity the tossings and rockings a baby has to endure. Old people of both sexes are also practically immune. The athletic type in whom powers of oxidation are well developed suffer very little; heavy and even moderate drinkers who have acquired the habit of quickly oxidising carbohydrates also belong to this class. On the other hand, the hypoglycæmic diathesis is a direct predisposing cause. This group includes children liable to *cyclic vomiting*, certain types of *endocrine dysfunction*, sufferers from *migraine*, and those liable to ketosis from slight causes. *Pregnancy*, in which there already exists a disturbance in metabolism, causes excessive sea-sickness. Nephritis, with its diminished blood carbonate reserve, and diabetes with pre-existing ketosis are also predisposing causes. The well-known type of person who vomits before the ship sails again comes under a different category, and requires different treatment. Such a case should be treated by reassurance, and if very agitated a sedative such as pot. brom. gr. xx. is useful.

Differential Diagnoses.

Sea-sickness is liable to occur with, and to obscure, certain much more serious conditions, and it is imperative to ascertain that no grave underlying disease is present. The condition most commonly met, and one which may cause great difficulty in the differential diagnosis, is *acute appendicitis*. This may mimic sea-sickness very closely; vomiting, abdominal pain, and headache may be complained of in either case. The abdominal pain in sea-sickness, however, does not cause rigidity, there is no rise in temperature, but rather the reverse, and an hourly pulse and temperature chart will make the diagnosis clear. *Acute intestinal obstruction* may be a complication of sea-sickness, since the act of vomiting may cause either obstruction by a band or incarceration in a hernial sac. The pain in obstruction is far more severe than that caused by sea-sickness, and once suspicion is aroused a careful abdominal examination and the administration of one or two enemata will leave no doubt as to whether obstruction exists. Perforations, especially of gastric ulcers, may be masked by sea-sickness; a perforation causes much more severe pain and shows those characteristic signs of rigidity and collapse which are pathognomonic of this catastrophe. There are medical conditions also liable to be overlooked, including the typhoid and paratyphoid fevers, and, especially when sailing in the East, small-pox. These possibilities have been stressed because the patient invariably attributes all his symptoms to sea-sickness and may mislead his physician unless the latter always keeps the graver diseases in his mind.

The Breaking of a Vicious Circle.

When other diseases have been excluded and the type of case being dealt with has been ascertained, the treatment of sea-sickness resolves into the breaking of a vicious circle.[1] Whatever the cause of the initial vomiting, whether nervous, due to labyrinthine stimulation, irritation of the splanchnic sympathetic, gastric irritation, or ketosis following hypoglycæmia, the persistent vomiting combined with the absence of food soon causes a ketosis. It is vital, therefore, to administer carbohydrate to the patient, and the easiest and pleasantest way is to give orangeade made with glucose (glucose, one tablespoonful, one squeezed orange to one tumbler of water with ice). This is absorbed directly from the stomach, and if it is only retained a few minutes some is absorbed. The patient should be encouraged to sip a little of this drink as often as he likes and very soon the worst feelings will pass away. Diminished urinary excretion is a marked feature in sea-sickness, the urine giving a considerable deposit of urates on standing; if the kidneys are not very active they are unable to excrete this concentrated urine and waste products accumulate in the blood; this is another good reason for encouraging the consumption of fluids.

Drug Therapy.

Combined with the administration of fluids and glucose, various drugs which have been recommended from time to time may be tried. The list includes atropine, tr. belladonnæ, cocaine, sodæ bic., chloretone, pot. brom., morphia, hyoscyamus, acid. hydrocyan. dil., cerium oxalate, tr. iodi, bismuth and soda, sodamint tablets, mothersil, seoxyl, and many others. None is specific, but some are helpful under different circumstances. Pot. brom. gr. xx., combined with tr. belladonna ℥ v., is useful in nervous patients, especially in those suffering from insomnia. Belladonna is given with a view to inhibiting the motor effect of the vagus on the stomach. On the same principle atropine may be administered combined with strychnine (atropine gr. 1/100, strychnine gr. 1/30) hypodermically when a patient shows signs of collapse. Chloretone has its advocates. This drug is a gastric sedative and cerebral depressant, and is also suitable for the nervous case. It is given in cachet form in doses of gr. v. not more often than twice a day; generally it is absorbed with difficulty, but it may be absorbed in massive doses should it accumulate in the presence of fatty acids in the bowel. Chloral and bromide may be given per rectum in cases where nothing can be retained by mouth, in the form of a suppository containing chloral hydrate gr. xv. and pot. brom. gr. xxx., three times a day. Morphia may be given hypodermically, but its use very rarely needed if the other remedies are used with discretion. A useful routine mixture consists of two powders: (*a*) pot. bic., gr. xv.; (*b*) citric acid, gr. x.; glucose, ʒ iv. When dissolved in water and mixed these give a palatable effervescent drink which often cuts short an attack. In very bad cases where nothing can be retained by mouth, and where collapse is threatening or present, glucose should be administered with saline per rectum, or better 6 per cent. glucose. This solution should be given in 15-oz. doses every four hours, and is nutritive as well as useful in replacing lost fluid.

Diet and Management.

The patient should be kept warm, and the air fresh. This is very important as oxygen scarcity is a direct precursor of ketosis. Part of the increase in sea-sickness observable during storms is due to the necessity of shutting the portholes with a consequent diminution of oxygen-supply. Stewardesses have a habit of advocating a chair on deck as a curative measure; this is not advisable in a cold wind after an attack of sea-sickness, and the recumbent position should be maintained until two meals have been digested. In some cases closure of the eyes affords relief. All causes of emotional disturbance should be avoided, and it is therefore wise to have a receptacle, in a convenient position, for the early stages of the voyage, as this will allay fears rather than encourage its use. As soon as the patient begins to improve light food should be taken. Patients exhibit individual preferences, but chicken sandwiches without butter, biltong spread on dry toast, fruit. jellies, be f-tea are usually acceptable. Tea and coffee with milk are usually badly tolerated, but iced weak tea with lemon and sugar is beneficial. Dry ginger ale, with or without brandy, and cha-

[1] THE LANCET, Oct. 15th, p. 811.

agne have their supporters. It is wise to recommend he patient to avoid all fats, but otherwise to take lenty of food even if it is not all retained.

Complications.

Apart from the acute surgical emergencies which ay arise either along with or due to sea-sickness, here are sequelæ which require treatment. *Constipa-ion* is a common complaint which is due to the hange of diet and mode of life. An effervescent aline aperient given before breakfast is very useful, eidlitz powder being especially so, as it is laxative, ffervescent, and alkalising. If these do not agree he aperient habitually taken by the patient should e allowed.

Diarrhœa often accompanies severe sea-sickness. he exact cause of this is uncertain, but it is possibly ue to a pancreatic disturbance. It may be very oublesome but passes away as vomiting lessens.

Cystitis.—True cystitis does not occur as a sequela f sea-sickness, but a condition resembling it clinically frequently seen. It is due to the unusual con-ntration of the urine and not to microbial infection. A few doses of the following mixture will soon alleviate the condition: pot. cit. gr. xx., tr. hyoscyam. ℥ xx., inf. buchu co. ad. ℥ ss., t.d.s. This treatment is preferable to the giving of acid sodium phosphate and hexamine since the urine is usually very acid already; the condition is not an infection, and tends to clear up when the urine is rendered more alkaline.

Headache.—If there is no acetone in the urine the headache should be treated on ordinary lines by the exhibition of aspirin gr. x., phenacetin with caffein gr. x., &c.; the presence of acetone in the urine is a sign that more glucose is required.

Short Voyages.

For short journeys a rather different method of treatment is required. Poor sailors should partake of a good meal two hours before embarkation, and take chloral gr. v. or pot. brom. gr. x. to xv. Immediately on embarkation the dose should be repeated and the patient should lie down. In this way a short journey may often be passed in comfort.

G. H. ORIEL, M.D. Camb.,
late Surgeon, Canadian Pacific Steamships.

Special Articles.

GENERAL MEDICAL COUNCIL.

PRESIDENT'S ADDRESS.

THE 126th session of the General Council of Medical ducation and Registration opened on Nov. 22nd th the customary address by the President, Sir ONALD MACALISTER. He began with sympathetic ference to the death since the last session of the uncil of Prof. Harvey Littlejohn, of Edinburgh, d Mr. Thelwall Thomas, of Liverpool, whose places d been filled by Prof. J. Lorrain Smith and Mr. W. Monsarrat. Another change in the member-ip of the Council was occasioned by the appoint-nt by Manchester University of Prof. J. S. B. opford to succeed Prof. R. B. Wild. The Queen's niversity of Belfast had sent Prof. R. J. Johnstone, P., in succession to Colonel Sinclair, M.P., who ained his seat on the Council in another capacity Crown nominee. The President continued:—

Registration in the Irish Free State.

"Four members of our body have been appointed the Irish Free State Medical Registration Council, ablished under the Free State Act, passed in cordance with the recent agreement to which I de reference in my last address. The election of colleague Dr. Coffey as President of the Irish uncil goes far to ensure its smooth and effective rking, in coöperation with our own body. The itish Bill for the ratification of the Irish Agreement s passed through the House of Lords. It is expected come before the House of Commons during the sent session of Parliament.

Pharmaceutics.

"The committee considering the question of the thod of preparing the next British Pharmacopœia s practically completed the taking of evidence, d will, I learn, proceed forthwith to the drafting its report. But I shall have no fresh information the subject to communicate to the Council at the sent session. We are still awaiting the conclusions the Privy Council Committee on the Poisons and rmacy Acts. These conclusions may have bearings medicine, which will call for your consideration a later date.

The Colonial List.

"The Executive Committee has had communica-ns, through the Privy Council, from Quebec, tario, and New Zealand, which indicate a disposi-n in these parts of the Empire to withdraw from ctitioners registered in the Medical Register the privileges of practising within their respective territories which have hitherto been accorded them, in virtue of reciprocal agreements made by Order in Council. The ground for the withdrawal seems, generally speaking, to be a desire to 'protect' certain local professional interests. If no modification of the views held by the provincial authorities on this subject can be brought about, the Privy Council will have to consider whether the privileges granted by this country to practitioners from these British possessions now registrable on the Colonial List of the Register can justly be continued.

Indian Standards.

"The reports of the Executive Committee, based on the results of the visitations and inspections of Sir Norman Walker and Colonel Needham, have been duly forwarded to the Secretary of State for India, the Indian Government, and the Indian Universities. There has as yet been time for little more than formal acknowledgments of their receipt; but from numerous unofficial communications we may gather that the desire of the Council to assist the Indian authorities in their efforts to improve the methods and standards of medical education in India has been gratefully recognised. We further learn that definite steps have been taken to bring before the Central Legislature the question of establishing, by the agency of an all-Indian Council, some form of control of Indian standards of professional qualification. It is of interest in this connexion to record that both Sir Norman Walker and Colonel Needham have been severally invited to visit the United States, within the next few months, for the purpose of giving to certain medical authorities in that country the benefit of their special experience in matters of medical education and examination.

Medical Education.

"The Education Committee will probably be able to present to you at this session a final report, setting forth the progress made by the several teaching and examining bodies in this country towards giving legislative effect to the Council's resolutions on the medical curriculum, which came into force in January, 1923. It is satisfactory to observe that, almost without exception, the regulations of the licensing bodies are now in practical conformity with the principles laid down by the Council. The circulation of the final report among the bodies concerned will without question be of service to the cause of professional training and testing. Each body will find something of value for its own use in the experience and practice of the others. The Examination Committee, in like manner, will have a report to submit on the visitations of professional examinations other than the final or qualifying examination. From this report also much may be learned regarding the merits

of diverse examinational methods and arrangements. The regulations for the registration of medical and dental students have been carefully revised by the Education Committee, with a view to greater clearness and consistency in their statement. The amended form will be submitted for your approval."

In conclusion, the President stated that in company with Mr. Eason he had appeared before the Departmental Committee on the Registration of Opticians Bill, and given evidence in support of the memorandum on the subject which appears in the Council's Minutes. So far as he was aware the decision of the committee had not yet been published.

Sir HOLBURT WARING proposed, and Sir NORMAN WALKER seconded, a vote of thanks to the President for his address. The following appointments were officially notified: (*a*) Mr. Robert James Johnstone, representative of Queen's University, Belfast, for three years from June 15th. (*b*) Dr. John Sebastian Bach Stopford, representative of Manchester University for three years from Oct. 22nd. (*c*) Dr. James Lorrain Smith, representative of Edinburgh University for five years from Oct. 24th. (*d*) Mr. Keith Waldegrave Monsarrat, representative of the University o Liverpool, until Dec. 31st, 1930.

The Council then considered penal cases.

MEDICINE AND THE LAW.

Unsuccessful Claim for Negligence.

Dr. J. M. Todesco, resident medical superintendent of the Croydon Borough Isolation Hospital, and Dr. J. Elder, formerly assistant medical officer at the hospital, are to be congratulated upon the failure of the protracted proceedings initiated against them by Mrs. Venn. The plaintiff, who claimed damages for the death of her husband (in June, 1922) on the ground of the alleged negligence of the two defendants, had made three attempts. The case first came before the Lord Chief Justice in June, 1925; it lasted five days, and ended in the disagreement of the jury. It next came before Mr. Justice McCardie in February, 1926, when it went on for eight days with the same result. It finally was tried before Mr. Justice Horridge from Nov. 11th to 17th, and ended in a verdict for the defendants. The learned judge, at the beginning of the recent trial, explained to the special jury that the claim was brought by the plaintiff under the Poor Persons Rules; this meant that her solicitors and counsel would get no fees, and the same fate, it appears, befell the jurymen. The history of this case seems to suggest that a "poor person" can indulge in litigation which otherwise only a very rich person could afford. If the jury had continued to disagree, Mrs. Venn might have continued indefinitely to occupy the courts to the exclusion of other litigants. Meanwhile, the unfortunate defendants, against whose professional reputation her attack has failed, have no prospect whatever of being refunded one penny of the heavy costs which her three years of litigation have imposed upon them.

Legitimacy Act Applications.

Although applications under the Adoption of the Children Act are heard in camera, both in summary proceedings before magistrates and in the county courts, no such encouragement is given to applicants under the Legitimacy Act. Under the latter Act, it will be remembered, an illegitimate child of parents who afterwards marry can claim a declaration of legitimacy if the parents were in a position to marry when he was born. It would seem at first sight that proceedings under the Adoption of Children Act and under the Legitimacy Act are alike in demanding protection from publicity and curiosity. But the Attorney-General, who is a party to all proceedings under the Legitimacy Act, has refused to agree to their being disposed of in private. It was laid down in Scott *v.* Scott ([1913] A.C. 417) that His Majesty's courts must be open to the public, and that publicity is necessary to the proper administration of justice. Exception is made only where publicity would prevent the proper administration of justice, as, for instanc on an injunction to prevent the exploitation of secret process or where particular evidence could n be given in open court. In Scott *v.* Scott Lo Halsbury declared that a mere desire to consid feelings of delicacy, or to exclude from public heari details which it would not be desirable to publis is not enough to prevent a public hearing. In recent case under the Legitimacy Act of 1926— case described as the first petition to be present under the Act—Lord Merrivale adopted Lo Halsbury's language and said that it was not the l that, if publicity deterred a person from taki proceedings, he should therefore be allowed to bri his case in camera.

There was a strange flaw in the drafting of t Legitimacy Act, 1926. The procedure under t Legitimacy Declaration Act of 1858 was appli without it being noticed that the 1858 Act had be almost entirely repealed and superseded by t Supreme Court of Judicature (Consolidation) Act 1925. This error was pointed out in a case report in the *Times* of June 22nd, but appears not to fatal. The main task before the applicant for legitimacy declaration is to prove his facts and ensure that all interested persons should be brou before the court, including possibly the next-of-k of the putative father. Where there are two three brothers and sisters who are making an applic tion upon the same set of facts, one set of affidav and one body of evidence will apparently be accept by the court on behalf of all the applicants. It m be added that, though proceedings cannot be heard camera, reputable newspapers may well decide r to publish the names of the parties.

Preservatives in Food.

As is well known, the Public Health (Preservativ &c., in Food) Regulations of 1925, amended in 19 and brought into operation at the beginning of 19 prohibit the use of boric acid and impose conditio upon the employment of permitted preservativ They provide, for instance, that sausages or sausa meat may contain preservative in the form of sulph dioxide in the proportion of 450 parts per milli Sausages or sausage meat, if containing preservati must be labelled to that effect, and articles sold a preservative are to bear the label "This preservati contains — per cent. of sulphur dioxide." The *Tim* of Nov. 16th records two prosecutions under the provisions. In one a firm of manufacturing chemi at Southall was fined £42, and ordered to pay £5 costs, at Brentford police-court for selling preservat which was labelled and warranted to contain 7 cent. of sulphur dioxide, whereas on analysis 11 per cent. was found present. It was stated that preservative powder was retailed to several butch who had been summoned and fined for using m than 7 per cent. sulphur dioxide in sausages. T defendant firm stated that the consignment, af being prepared, got wet, and that the constitu parts must have changed in the redrying proce The other prosecution on the same day was at Guildhall, where a West Smithfield company w summoned for selling preservative powder sausages which contained 0·3 per cent. boric a contrary to the Regulations. It was pointed out behalf of the defendants that this amount was trifl compared with what was permitted before the rec Regulations came into force. The Alderman, w heard the summons, refused to accept this as defence, though he inflicted only a small fin 20*s.* and a guinea costs. It is undoubtedly hard u defendants who buy in bulk and sell in retail u the faith of a manufacturer's false description. T defendant company, it was stated at the Guildh merely put up in tins the powder which they bou from a well-known firm. It was suggested that t company had done all it could reasonably be expec to do. The Alderman, however, remarked that could have analysed the powder as had been d by the prosecution.

ROYAL SOCIETY OF MEDICINE.

ANNUAL DINNER.

THE annual dinner, held at the Hotel Victoria
1 Nov. 16th, was well attended and made memorable
7 the presentation of a presidential badge, bearing
e new coat of arms already described in our columns.[1]
r JAMES BERRY presided, and the guest of the
ening was Lord Darling, who, in proposing the
alth of the Society, pointed out how his profession
d worked for the preservation of medical privilege,
rticularly by discouraging the administration of
senic and strychnine and the performance of
acheotomy by unqualified persons.

Sir STCLAIR THOMSON described the origin and
pearance of the new badge, of which he was the
nor. St. Cosmas and St. Damian had started their
reer, he said, as Arabian physicians, who resembled
eir modern successors in their title of "Anargyres"
oneyless) and their aspiration to sanctity. They
ffered persecution under Diocletian, but neither
prisonment, beating, nor stoning broke their spirit.
nally they were bound and thrown into the sea,
d there was a mural painting by Fra Angelico
picting an angel helping them ashore—"in the
esence of two witnesses," Sir StClair Thomson
ly added. Cosmas and Damian became patron
nts of the great Medici family, and as such appeared
mosaic, painting, and sculpture by the greatest
ists of Italy. They had, therefore, a strong claim
be the supporters of the coat of arms. The motto
the old Royal Medical and Chirurgical Society,
Non est vivere sed valere vita," had been retained.
meant (he hoped) "We're all alive and having a
od time." Giving of one's own out of love and
lowship was to him the salt of life, and in that spirit
begged the President to accept the chain, badge,
d coat-of-arms.

Sir JAMES BERRY, in acknowledging the toast,
d a letter from Sir William Church, first president
the amalgamated societies, written within a day
two of his ninetieth birthday. He reviewed the
r's progress. There had been an increase of
20 per cent. in the services rendered by the various
partments of the library, and the "Proceedings"
d been greatly improved. The number of Fellows
reased steadily, and an immense amount of valuable
rk had been performed by the sections. He thought,
wever, that more might be done by special scientific
mmittees in investigating questions of medical
ence. During the past year, for instance, a joint
mmittee of anæsthetists, surgeons, and pathologists
d been considering a matter referred to them by
Ministry of Health. The Society contrived to
y its way, but would be glad to be free of a debt
over £20,000 on the building.

Proposing the health of the guests and the kindred
ieties, Mr. WARREN LOW speculated on the origin
the custom of toasting the visitors. He liked to
nk that it was a signal that no further harm to
guests was intended than the speech. The Black
ner at Edinburgh Castle, and the meal to which
tain Roman bachelors had invited their neighbours,
Sabines, must have broken up shortly after the
al toast. He referred to the difficulties of the doctor
courts of justice, especially when called as "expert
ness," a term which he hoped would be judicially
demned as libellous; and when placed in the
ness-box to become the butt of judicial humour
l the victim of what was aptly called "cross"
mination.

Sir ARTHUR KEITH, replying for the guests, referred
the double personality of Barrie and McConachie,
l said that the President of the British Association
l enjoyed hospitality that evening, but that the
tleman replying to the toast was the humble
vant of a proud college. Adapting a remark of
Berkeley Moynihan's, he described himself as a
r medical practitioner who had been doomed to
practise anatomy, but had always kept his foot in the door of medical practice. He spoke earnestly of the rationalisation of medicine, but there were two great hindrances: the first was the difficulty of coming to a final conclusion as to the proper thing to do; the second, and greater, was to educate the public. There would never be a rational medicine until the public had been educated. If we were rational, a Harley-street address and the doctor's clothes would mean nothing to us. The hospitals sent out young men resolved that, as far as in them lay, they would not be quacks in any sense of the term, that they would be rational; but they did not know what they were up against. It was the public that kept science back. Those who desired to make progress should not look on the human body as a duality, but as a unity.

Among the guests were the Presidents of the kindred societies; the Master of the Society of Apothecaries; Mr. Martin Travers, the designer of the coat-of-arms; Prof. Pirquet, of Vienna; and Mr. and Mrs. Geoffrey Duveen.

[1] Nov. 12th, p. 1036.

BRITISH INSTITUTE OF RADIOLOGY AND THE RONTGEN SOCIETY.

THE inaugural dinner to celebrate the amalgamation of the Institute with the Society was held at the Hotel Great Central, London, on Friday last, Nov. 18th. The dinner was followed by some good and interesting speaking.

The toast of the Amalgamated Societies was proposed by Sir FRANK DYSON, the Astronomer Royal, who humorously contracted out of any necessity for making intimate references to either body, because, while he appreciated the importance of the wedding, he was unacquainted with the exact character of either bride or bridegroom. The Astronomer Royal described graphically the sensation which had been caused by Rontgen's discovery over 30 years ago and which vied with excitement caused by the exploit of Mr. Blériot in flying the English Channel 14 years later; each was an unmistakable demonstration of the march of science. He dwelt upon the suggestive fact that Rontgen to a certain extent had made his discovery accidentally, or rather incidentally, while working at other high problems in physics, but the influence which that discovery had had upon medicine was of a fundamental nature. No doubt, said Sir Frank Dyson, doctors, with vast material for observation and trial, would have discovered much in the location of foreign bodies by elaborately devised employment of probing and perfection of other methods, but medicine saw at once the great field of diagnosis that had been opened up, and was quick off the mark to annex it. He pointed to the development of radiology as instanced by the fact that shortly after Rontgen's discovery the popular exhibition of its surgical and medical significance was to give the guest at a scientific soirée an opportunity of seeing his own skeleton, while to-day a radiological exhibition was a highly standardised and technical affair. He said that from personal knowledge he had been much struck by the shortness of the exposures necessary to arrive at a diagnosis, while the safety of the procedures had also impressed him; and he evidently thought that the attendant at a radiological clinic, who showed the adjacent mortuary to a patient proceeding to the diagnosis chamber, had been unduly cynical. Speaking generally of the advantage of the amalgamation of the bodies working at radiology, he pointed out that the separation of different sections of a common branch of learning was always unfortunate. He would distinctly dislike the science of astronomy to be approached along two different lines of theoretical astronomy and astral physics; in the study of X rays, as in astronomy, the sciences must be ready to receive all advantages, from whatever branch of physics they may be derived.

Sir HUMPHRY ROLLESTON, in reply to the toast, endorsed the Astronomer Royal's plea for union and coöperation in science, pointing out that those who devoted themselves to radiology might otherwise be in danger of getting segregated in their own departments. It is not good, he said, for man to live apart; and if the marriage which they were now celebrating was to be profitable it must not be regarded as a Darby and Joan existence. Rather in this union they had projected a life of increasing activities and especially of thought for offspring, for they intended to found branches in the provinces to be affiliated with the central institute. The previous monthly meetings of the societies would not be given up, and the instruction for the diploma in medical radiology and electrology would be continued, while strong sections of physics and radiology in application to medicine would be active in medical societies. In allusion to the work done by the Rontgen Society in bringing about the affiliation he alluded specially to the President, Dr. Finzi, of whom it might be said that, whichever body was bridegroom and whichever bride, he was the best man. In allusion to the guests present, he pointed out that Sir John Rose Bradford, in his position of President of the Royal College of Physicians of London, was seldom allowed to dine at home, sacrificing the advantages of domestic union for the good of the general union of medical forces. He welcomed the presence among them of Prof. Wachtel, of the Radiological Institute at Cracow, and of Dr. Knox, fortunately recovered from recent illness. In conclusion he announced that the firm of Messrs. Watson and Sons had sent to the Amalgamated Bodies a donation of 100 guineas as a wedding present.

The toast of the guests was proposed by Dr. THURSTAN HOLLAND, who coupled with it the names of the President of the Royal College of Physicians, and Mr. E. H. Rayner, D.Sc., of the electricity department of the National Physical Laboratory.

Sir JOHN ROSE BRADFORD, in reply, categorically refused to speak for anyone like the Astronomer Royal. He was prepared, he said, to deal with matters terrestrial, but Sir Frank Dyson was immersed in matters celestial, while, judging from what occurred at the recent total eclipse in England, he could command the sun to behave in the way best suited to illustrate for himself the expected phenomena. He thanked the Society not only for their hospitality, but for giving him sound moral advice as to the cultivation of domestic instincts, and added that he did not think the company would expect him to expatiate upon the benefits derived by medicine from radiology—they were so obvious.

Dr. RAYNER spoke eloquently of future developments of radiology viewed from the aspect of physics. He claimed scientific descent from his grandfather and his father, and he welcomed the opportunity at the National Physical Laboratory for assisting the development of radiology in the cause of medicine, a development of which he spoke in eloquent terms. He proposed that the guests at this inaugural dinner of the amalgamated bodies should send a message of greeting to Prof. Coolidge, whose name was ever on their lips, as his tubes were ever in their hands.

The health of the President was proposed by Mr. G. W. C. KAYE, D.Sc., superintendent of the Physics Department of the National Physical Laboratory, who said that, from the moment the necessary fusion of the two became imminent, it was felt that there could only be one captain for the ship—namely, he who, from the position of a physician, had done more than any one man for the cause of radiology, and whose management of their affairs had throughout been conducted in so courteous and competent a manner.

Sir HUMPHRY ROLLESTON, in a brief reply, asked all present to join him in drinking the health of Dr. Stanley Melville, to whose efforts the entertainment they were enjoying was due, and mentioned in similar association the names of Dr. John Muir and Mr. Cuthbert Andrews.

Dr. STANLEY MELVILLE felt that he could not tak personal credit for what he believed had been a mos successful little congress, apart from his colleague Dr. Muir's capacity for strenuous work was we known to all the members of the Institute and neede no words from himself except to say that witho him all would have been chaos. Mr. Cuthbert Andrew had been a moving force in the organisation, f always he had given the impression that nothing wa too good for the business on hand, and even th Central Hall, Westminster, was all too small for wha he wanted. Dr. Melville concluded with an amusin suggestion for future festival dinners—namely, tha instead of formal orations the gathering should resol into a symposium, the speeches taking the form personal reminiscences. He instanced the pleasure would have given the company had their Presider discussed the value of the early morning game tennis, the Astronomer Royal his personal experienc during the last eclipse of the sun, and Dr. Finzi h Alpine climbs.

Public Health Services.

REPORTS OF MEDICAL OFFICERS OF HEALTH

THE following are some of the 1926 statistics four cities:—

Name of district and estimated mid-year population.	Birth-rate.	Death-rates per 1000 of the population.					Death-rate per 1000 births.		
		All causes.	Tuberculosis.	Cancer.	Respiratory diseases with influenza.	Heart disease.	Diarrhœa, &c., under 2 years.	Infant mortality.	Maternal mortality
Liverpool .. .. (849,593)	23·3	13·7	1·47	1·17	3·3	1·1	26·4	104	3
Manchester .. (761,320)	18·3	13·2	1·41	1·44	2·9	1·4	16·3	87	4
Sheffield .. .. (523,300)	17·2	11·3	0·93	1·19	2·1	1·4	13·6	79	6
Leeds .. .. .. (473,400)	17·0	12·8	1·24	1·39	2·3	1·6	18·2	93	3

The neonatal mortalities from above downwards were: 34, 37, and 39.

Liverpool.

Dr. A. A. Mussen reports that the infant mortalit rate was 104, as compared with 99 in the previc year, and that the increase is attributable to t prevalence of diarrhœa and enteritis in the cent parts of the city. An investigation of the cau again emphasised the importance of breast-feedi Two cases of plague were notified in August (report in THE LANCET, 1927, i., 870), but no evidence plague-infected rats was discovered. Immunisati against diphtheria has been carried out successfu in a number of institutions. In six of them th were 46 cases of diphtheria during the six mont before the inoculation, whereas there were only fo cases in the subsequent six months. An investigati has shown that in Liverpool 20 per cent. of t juvenile survivors from encephalitis lethargica ne institutional treatment. These "conduct" cases a often amenable to a kindly discipline, says J. Mussen, and to certify them all as moral imbeci under the Mental Deficiency Act or to place th among the insane appears to be unjustifiable, thou in a few cases this course may be desirable. Th is no special institution available in Liverpool, a the number of cases occurring in any particu district is too small to justify the establishment of o A general meeting of the larger municipalities w called together in November to consider the establi ment of a joint institution. Dr. Mussen says t

ne further decline in the deaths from alcoholism and infants from overlying affords "most eloquent stimony to the improved social condition of the ty."

The maternity and child welfare centres have en well attended. The births during the year mbered 19,792, and 1668 expectant mothers tended the four antenatal clinics under the control the Health Committee. Of these 412 were primi-avidæ and 1256 multiparæ. The Carnegie infant elfare centre has proved of great value. It pro-des clinics for infants and expectant mothers, ards for babies who are not thriving, and an educa-onal centre for students of preventive medicine.

The treatment of venereal diseases at the Seamen's spensary shows a marked growth; there were 1 new cases in the nine months of 1924 after the ening, 1084 cases in 1925, and 1360 in 1926. The tients are attentive to instructions and take an elligent interest in their progress. The tuber-losis scheme suffers badly from the lateness of tification.

Five cases of anthrax occurred; one of the patients ndled wool in a warehouse, another discharged les from a vessel, and a third was a "lime-jobber" a tannery. Two women were manipulating foreign hair at the time of infection. Of the five patients o died. Although the death-rate from respiratory eases was high, a table shows that it was nearly ice as high during the last three decades of the eteenth century. During 1926 eight cases of sentery were reported, in addition to three which ived on shipboard. Dysentery was formerly pre-ent in Liverpool, and Dr. Mussen thinks that some the deaths registered as from diarrhœa are really m dysentery. During the last 30 years there has n an apparent increase in the death-rate from betes, but it is suggested that the greater attention ently paid to this disease has led to its more quent recognition as a factor in mortality. About per cent. of the total births were attended by lwives, including 1471 by the midwives on the ff of the Ladies' Charity. As far as is known no hs were attended by uncertified women during year. Nearly 4 per cent. of the 347 stillbirths teriologically examined were found to be due to hilis. No damage to eyesight from ophthalmia natorum has occurred during the past two years. ty-one mothers with their infants were admitted St. Paul's Eye Hospital for the treatment of this ction.

About one-third of Liverpool's milk comes from 0 cows stalled in the city. Among these 20 tuber-ous udders were found during 1926. Among the side cows ten tuberculous udders were discovered. bacteriologist's report shows that out of 157 ples of milk supplied to the city hospitals 11 con-ed tubercle bacilli; that out of 81 samples sup-d to infant welfare centres six contained tubercle illi, and that out of 578 samples taken from milk ps, railway stations, &c., 38 contained tubercle illi.

The new houses built numbered 4838, of which 2 were municipal. This is a great advance on eding years. The replacement of insanitary ses in the centre has been begun in the Pitt-street a, where 57 tenements are now under construction.

Manchester.

Dr. R. Veitch Clark reports that the scheme of k initiated by the Manchester Committee on Cancer May, 1926, has proceeded actively. The main line research is the means of prevention of mule-ners' cancer. The effects of the various lubri-ng oils used in cotton-spinning are being studied. follow up of operation cases shows that 80 per . of cases of cancer of the breast were alive ten s after operation. A record is being kept of the ological examination of all tumours dealt with he Royal Infirmary. A post-graduate course of ectures for medical men on various aspects of the er problem has been held. The lectures will be published in book form and distributed to medical men in the neighbourhood.

In spite of continued municipal activity there is no real improvement noticeable in housing, but it is anticipated that the increased rate of building will have a recognisable effect within a reasonable time. Unfit houses cannot be dealt with at present. Three unhealthy areas have been scheduled, which include 1463 houses, but of these it has only been possible to deal with a small area containing 199 houses. The seriousness of the housing problem is emphasised in a special report on housing in relation to child-birth, in which an analysis has been made of the conditions under which 1000 confinements occurred in the working-class districts of Manchester. The outstanding fact revealed was that privacy was only possible in 46 per cent. of the houses occupied by one family and in 2 per cent. of the houses occupied by more than one family.

Since November, 1924, observations have been carried out as to the incidence of sunlight in Manchester as compared with the neighbouring districts of Timperley and Baguley, and since April, 1926, the available ultra-violet rays have been measured. During 1925 and 1926 Manchester only received 59 per cent. and 55 per cent. of the sunlight falling upon Timperley. The regional joint smoke committee is not yet in smooth waters. Very few of the constituent authorities favour the establishment of a united district, and the effort is being made to bring about instead some uniformity of procedure among the various authorities. The reorganisation of the inspectorate which took place at the end of 1925 has proceeded smoothly and realised a large and permanent economy. A large number of special inspectors have been drafted into district work and the staff of disinfectors has been abolished.

At Baguley Sanatorium tuberculin has been used in the diagnosis of doubtful cases, and it is claimed that this procedure has been "of value in eliminating a number of cases that might have been designated pulmonary tuberculosis for the rest of their lives." At Monsall Hospital the treatment of puerperal fever on the lines recommended by the Medical Research Council has been continued. The main lines have been lymph drainage of the uterus, blood transfusion, and the use of arsenical drugs. During 1926 defibrinated blood transfusion was discontinued owing to disappointing results, but a reliable apparatus for whole blood transfusion has now been obtained. In certain cases arsenical drugs have done good. The admixture of iodine with the glycerine used for the local treatment has been persisted in, despite its discontinuation elsewhere. The absence of complications has again been a marked feature of the glycerine-iodine irrigation. Other interesting work carried out at Monsall in connexion with the Dick and Schick tests is described in the report. Of the 474 samples of outside milk examined 49, or 10·3 per cent., proved to be tuberculous. Colonel Brittlebank, the chief veterinary officer, says the increase in tuberculous milk is due in some part to the increased area of supervision, "but it also clearly points to the fact that the Tuberculosis Order, limited in scope as it is, and administered very often in the unsatisfactory manner that it is, provides no protection against infection in the general milk-supply." Nothing is being done, he says, to encourage early notification, and although the discovery of tuberculous milk is generally evidence of widespread infection on a farm, the veterinary surgeon is frequently prohibited from examining all the animals in the herd, and is restricted to dealing with the case notified.

The services of experienced obstetricians have been made available under the puerperal fever scheme. Dr. Clark stresses the fact that puerperal fever shows no tendency to get less, that it is frequently associated with difficulties in labour which call for "an extension of our markedly inadequate antenatal work," and that other needs for its prevention are "more maternity hospital accommodation and more housing."

Sheffield.

Prof. F. E. Wynne says that the most important public health event of the year was the outbreak of small-pox. There have been a few cases in Sheffield in each year since 1921, but the disease did not gain any footing until the last quarter of 1925, when there were 44 cases. Special arrangements were then made by the equipment of the hutment camp at Redmires. During the early part of 1926 the disease seemed to be under control. The notifications in the first four months were 9, 3, 7, and 12 respectively. In May, June, and July the notifications numbered 1, 1, and 3, and then the prevalence began to increase, as there were 6, 13, 19, 31, and 52 notifications during the five months August to December. Dr. Wynne suggests that the rise towards the end of the year coincided with the reopening of the elementary schools, lowered resistance to disease in the industrial districts from the reduction of light, and the congregation of people in the ill-ventilated darkness of the cinemas. No case occurred in a recently vaccinated person. There were no deaths from the disease, although a number of patients were seriously ill and some had very severe eruptions.

The scheme for the conversion of privies made good progress, water-closets being substituted for 1820 of them. The repaving of 1322 yards was completed. The number of houses erected showed a material increase, "but the amount of overcrowding continues to be deplorable." Of 2714 houses erected during the year ended March 31st, 1927, 1752 were municipal. The maternity and child welfare work had outgrown the accommodation in the old premises, and in October the foundation-stone of a new building "with ample accommodation for many years to come" was laid by Sir W. Kingsley Wood. Copies of the elevations, plans, and sections are given in the report. The completed building was opened during the present year by the Minister of Health. A new maternity block with 30 beds has also been opened, and, equipped as it is in a thoroughly up-to-date manner, will be a valuable addition to the maternity and child welfare scheme.

Sheffield has reason to congratulate itself on its tuberculosis scheme. A table in the report shows that of the 16 towns of England and Wales with a population exceeding 200,000, Sheffield had, in 1926, the lowest death-rate from pulmonary and also from all forms of tuberculosis.

The report of the tuberculosis officer, Dr. John Rennie, shows that the dispensary is being well used for consulting purposes. Thus 79 per cent. of the cases notified during the year were sent there before being notified. Again, of the 2203 pulmonary cases dealt with in institutions, 21·3 per cent. were taken in for observation, 54·7 per cent. were at an early stage of the disease, 14·1 per cent. at an intermediate stage, and 9·9 per cent. at an advanced stage. During the year arrangements were made with the guardians to take over all cases of tuberculosis of the lung under their care, and a block of 60 beds for male patients has been allocated for this purpose. There are now 446 municipal beds available for all ages and both sexes of patients, in addition to the 130 beds for surgical tuberculosis at King Edward VII. Hospital. The X ray apparatus at the dispensary is now regarded as indispensable, both for diagnosis and as a record of the chest condition, and 1709 skiagrams were taken during the year. Dr. C. L. Pattison, the surgical tuberculosis officer, reports that the children admitted to his hospital spend a shorter time there, and that in consequence some of the beds are available for areas outside Sheffield. The shortened stay is partly due to improved methods of treatment, but much more to the valuable coöperation of the medical men of the city in sending in the children at an earlier stage of the disease. In 1919 the average duration of stay in hospital was 731 days. In 1926 it was 252 days.

About one-third of Sheffield's milk is produced by 2600 cows stalled in the city. Amongst these, 32 cows with tuberculous udders were found by veterinary inspection during 1926. Rather more than two thirds of the milk comes in by road and rail from presumably about 6000 cows. Amongst these, by the much more unsatisfactory method of following up tuberculous milk samples, the Sheffield veterinary inspectors found 48 cows with tuberculous udders.

Of the 993 samples of mixed milk examined during the year 64 were found to be tuberculous. The number of tuberculous udders discovered by the Sheffield scheme both inside and outside the city during the last five years were 71, 72, 75, 79, and 8

Leeds.

Dr. J. Johnstone Jervis reports that there was a fall both in the deaths and the notifications from tuberculosis as compared with the previous year, but that the figures are still much too high. The reorganisation of the scheme is nearing completion. There is need for more sanatorium beds, however, especially for surgical tuberculosis, and the acquisition of the Elmet Hall estate should make it possible to meet this need. The accommodation in the municipal institutions at Killingbeck and Gateforth is for 220 and 50 respectively; and "The Hollies" sanatorium school for children from infected homes and children with signs of early infection has accommodation for 40 more. Dr. Jervis complains much of the lateness of notification. He would also like to see municipal houses provided at a low rental for families attacked by tuberculosis. It is hoped to add to the scheme the advantages of X ray apparatus, artificial sunlight, and dental treatment. Coöperation with the school medical department has been improved, but closer coöperation between the infirmary and the tuberculosis dispensary is needed, especially in the field of surgical tuberculosis. The notifications during the year numbered 1460, 1299 being pulmonary cases, but only 404 new "contacts" were examined at the dispensary.

"The housing riddle," writes Dr. Jervis, "remains unsolved," and in spite of the erection of 80 houses since the war, and the opening out of new housing estates, there are no signs of an upward movement of the population or of relief of the congestion in the older central parts of the city. During 1926 2065 new houses were erected, of which 17 received State assistance. The municipal houses numbered 780 and are, practically speaking, the only ones built for letting. It is intended to build municipal houses with either gas or electricity as the only form of heating. Eight of these were erected during the year. The West Riding Regional Smoke Abatement Committee sent out a final report to the constituent authorities, and nearly half of the latter have adopted the report in its entirety. Nine of the constituent authorities have decided to provide instructional courses for stokers. The possibility of having an efficiency test for stokers was under consideration, but presents many difficulties. An agreement has been made with the Halifax Corporation whereby the expert services of its smoke inspector will be placed at the disposal of any local authority in the area who desires them. Dr. Jervis regrets that cremation makes such slow progress in Leeds. A table shows that the average number of cremations during the past five years was 18; the corresponding figures for Liverpool and Hull were 76 and respectively. In discussing the matter he refers to the forlorn, dilapidated, and ugly condition of the graveyards in the city. It may be pointed out, however, that many of the graveyards in London have been made beautiful and that the same might be possible in Leeds.

The shortage of hospital accommodation has been mentioned in previous reports. Arrangements have now been made by the guardians for the admission of paying cases to St. James's Hospital, and plans for an up-to-date maternity hospital have been approved.

The 2016 cows stalled in the city are inspected monthly by the veterinary surgeon. Amongst them nine cases of tuberculosis of the udder and six of generalised tuberculosis were found during the ye

Forty-eight samples of outside milk were examined for tubercle, which was found in five of them. The follow-up was only successful in two out of the five cases in tracing the source of infection at the outside farm. The revision course arranged for the midwives at the Leeds Maternity Hospital was repeated this year, but only four midwives attended. Stillbirths during the last decade have averaged 4·3 per cent. of the total births. There are 18 infant welfare centres all managed by the Leeds Babies Welcome Association, and at 15 of them antenatal consultations were held, which were attended by 1658 expectant mothers during the year. The facilities for the provision by the corporation of the services of an obstetric consultant were only used by medical practitioners on 3 occasions at a cost to the corporation of £43.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED NOV. 12TH, 1927.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 58 (last week 219); scarlet fever, 2016; diphtheria, 316; enteric fever, 146; pneumonia, 892; puerperal fever, 43; cerebro-spinal fever, 8; acute polio-myelitis, 19; acute polio-encephalitis, 2; encephalitis lethargica, 13; dysentery, 8; ophthalmia neonatorum, 92. There was no case of cholera, plague, or typhus fever notified during the week.

Of the 146 cases of enteric fever 58 were notified from the county of Hertford, 48 being from Hemel Hempstead (U. and R.D.), and 9 from Watford (R.D.) (see also p. 1159).

Deaths.—In the aggregate of great towns, including London, there was no death from small-pox, 3 (2) from enteric fever, 31 (8) from measles, 6 (0) from scarlet fever, 13 (4) from whooping-cough, 24 (8) from diphtheria, 67 (17) from diarrhœa and enteritis under two years, and 47 (8) from influenza. The figures in parentheses are those for London itself. The third death from enteric fever occurred in Bristol. The number of stillbirths registered during the week was 119 in the great towns, including 28 in London.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Lt.-Comdr. A. G. Taylor to be Surg. Comdr.

The following appointments are notified:—Surg. Comdrs.: W. Woodhouse to *Victory*, for Haslar Hospl., and as specialist in anæsthetics; and R. N. W. W. Biddulph to *Pembroke*, for R.N. Barracks, Chatham. Surg. Lieuts.: B. Devane to *Pembroke*, for R.N. Barracks, and to *Calliope* (on completing for trooping), and to *Sandhurst* (on arrival on station); R. L. G. Proctor to *Dryad;* and E. V. Barnes to *Calliope*, for duty on voyage home (on relief).

ROYAL ARMY MEDICAL CORPS.

Capts. to be Majs.: J. M. Ryan, L. S. C. Roche (Prov.), R. Oram (Prov.), and C. L. Emmerson. J. D. Cooper to be Temp. Lt.

TERRITORIAL ARMY.

Lt. J. R. Griffiths to be Capt.

INDIAN MEDICAL SERVICE.

The undermentioned relinquish their temp. commns. and retain their rank: Temp. Capts. Bantwal Panduranga Kamalga, Dhirendra Chandra Mazumdar, Joy Devananda Sinha, and Pyare Lal Dube.

The undermentioned relinquish their temp. commns.: Temp. Capts. Krishna Das Mukharji, Chandrian Krishna Sarkar, Atul Krishna Kar, Dara Hormusji Bharucha, Shamsul Haque Wali Mohomed Siddiqui, and Des Raj Nayar.

ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—This institution is about to be further extended. A new electrical treatment block was opened a year ago, and the present extension will consist of wards superimposed upon it, each containing 26 beds. There will also be three single-bed wards.

Correspondence.

"Audi alteram partem."

CRIMINAL RESPONSIBILITY: MEDICO-LEGAL DIVERGENCE.

To the Editor of THE LANCET.

SIR,—The medical profession must be grateful to Lord Hewart on his delivery of the Lloyd Roberts lecture for his very lucid and logical exposition of the attitude of the criminal law towards insanity. Medicine and law find agreement difficult in this complicated theme. Law is the fruit of ages of human experience, and its maxims are arranged in as logical a manner as may be for the regulation of human conduct. It is, however, in this logical systematisation that psychological medicine finds its stumbling-block. The instance given by the lecturer of the man who is morbidly jealous, develops delusions, kills his wife, and endeavours to conceal his crime is a good one of the divergence of views taken by the lawyer and the physician. The lawyer thinks the killing should not be with impunity. The killer knew what he was doing and no doubt was in possession of knowledge that to kill under such circumstances is to murder. He is therefore in the view of the law to be punished. The physician, on the other hand, is unable to take up so "logical" an attitude or to express so precise a judgment. Anyone with experience of the mentally afflicted has met a case in which the patient suffers from a quality of jealousy which is utterly unreasonable, is not by any known means to be diverted or rectified, takes possession of and entirely vitiates the whole personality and renders him a noisome automaton. Such a patient may "know" what he is doing and "know" that he is doing wrong, but cannot be held to be capable of exercising a normal control over his actions. Similarly, in numerous other analogous but less marked instances the physician learns from his experience of the insane that power of control is in them so often diminished by disease that, though with full knowledge of what they are doing and of the consequences of their acts the patients cannot be held as responsible for their actions as are the sane. It is impossible satisfactorily to bring all insane conduct leading to acts of violence or other wrongdoing within the logical scheme of the answers of the judges given in the inquiry arising upon the McNaghten case. It is, of course, not for the medical witness in a court of law to pronounce any opinion on the responsibility of an accused person, but it is entirely proper that our views in such matters should be insistently laid before the lawyers on all other appropriate occasions.

I am, Sir, yours faithfully,

E. D. MACNAMARA.

Harley-street, W., Nov. 19th, 1927.

THE NUTRITIVE VALUE OF BREAD.

To the Editor of THE LANCET.

SIR,—In THE LANCET of Nov. 19th (p. 1093) Drs. Cramer and Mottram write: "It is to be regretted that on the basis of these faulty experiments Prof. V. H. Mottram, in whose laboratory these experiments were carried out, should have published in popular writings the erroneous statement that white bread contains an abundant supply of vitamin B and is not greatly inferior in this respect to wholemeal bread or germ bread, and that as the result of this propaganda this error should have been widely accepted."

May I quote my most recent "popular writing" (*The Nation and Athenæum*, Oct. 15th, 1927), one paragraph of which reads:" The arguments put forward for the use of brown bread instead of white are: that it contains more protein, that its protein is of better quality, and that it yields more mineral matter, more roughage, and more vitamin B. I think that each of these statements is unassailable, and at

the first sight the case for brown bread would appear overwhelming . . . ."

And may I further quote—I hope that the quotation will not be too long for the correspondence columns of THE LANCET—from my other recent "popular" account ("Food and the Family," James Nisbet and Co., second edition, 1926) on the same controversy:—

"*Bread.*—Naturally the first [food] which claims attention is bread, the so-called 'Staff of Life.' Probably it gets that name because every class in society eats so much of it, and because the poor find in it their mainstay. The best that we can say for bread, of any sort or description, is that, as a source of calories, it is cheap. That is why the poor eat it. Further, its flavour, such as it is, is one of which the palate does not easily tire. Bread dilutes the stronger flavours of meat and cheese, and it has an agreeable texture. Whether brown or white it contains vitamin B. These are the sum total of its good qualities. Otherwise it is a poor food *except in conjunction with other foods.* Alone it has too little and too poor protein. Animals grow but slowly upon it, and the stunted growth of the slum child is probably in part due to the poverty of building material in bread. There is no vitamin A nor vitamin C in it, and it leaves an acid ash. Therefore it needs to be fortified by animal protein (meat, fish, milk, or eggs); by fat (preferably containing vitamin A—e.g., butter); by fruit and vegetables for basic mineral substances and vitamin C. White bread contains no roughage.

"Nor is brown bread much to be preferred above white. It has a cleaning effect on the teeth, wherefore dentists recommend it above white; it contains roughage—too much for some people; and it has more vitamin B than white bread. Probably its proteins are a little better, for the male rat asserts his right to a greater stature than the female upon brown bread, upon white he cannot. In these slight superiorities over white there is no basis for the agitation to prevent the use of roller-milled and screened flour which some enthusiasts are raising. Used as a source of calories in a good mixed diet, with meat, milk, vegetables, and fruit, there is no reason to discard white bread. Only, perhaps, when the choice of foods is severely restricted by economy, and bread has to be relied on as the main source of energy, should brown bread be necessarily preferred to white. Otherwise the decision may be left to fancy."

Anyone who had had the patience to read thus far and to compare what Drs. Cramer and J. C. Mottram think I said and what I have actually said must hope that their scientific accuracy is greater than their controversial.—I am, Sir, yours faithfully,

V. H. MOTTRAM.

Nevile's Croft, Potters Bar, Nov. 21st, 1927.

To the Editor of THE LANCET.

SIR,—Dr. Cramer and Dr. J. C. Mottram have subjected some work of mine [1] to criticism, based on, as it seems to me, incorrect reading. No one can object to scientific criticism of scientific work, but it is another matter when the criticism is based on careless reading of or upon misrepresentation of what was actually written and done.

To take one example, they state "This experimental arrangement is obviously faulty, because it does not provide for any controls to show that vitamin B may not have been supplied by the only other article of this diet—namely, butter." Now this control actually was made. In five experiments (12 animals in each experiment) the animals were kept on screens to prevent their obtaining any vitamin B from excreta, and in one of these experiments lasting ten weeks, the only butter-fat they received was "rendered"—i.e., "stirred with hot water until melted and the fat, when cold, allowed to drain through muslin and then pressed as free as possible from liquid." Such washing of the butter is held to remove its vitamin B. The growth-rate of the animals was the same as before. Clearly th samples of bread used must have contained son vitamin B or symptoms of its lack would ha appeared in 70 days. Drs. Cramer and Mottra must have omitted to read this portion of the pape

As far as I know, I have never stated that "whi bread contains a considerable amount of this vitamin and that "the addition of yeast gives to white bre the relative high vitamin B content"—opinions wi which Drs. Cramer and Mottram credit me. Furth they say of my experiments: "the rats kept baking-powder bread and butter showed go growth," while I merely said "the rats fed on bakin powder bread did not thrive as well as the others and in other experiments that "the growth was slow

It is obvious that Drs. Cramer and Mottram ha misquoted me and so given entirely the wro impression of the findings of my work, which go to show that the sample of baker's bread whi I was using in these experiments contained enou vitamin B to supply the needs of the rat.

It is true that there are discrepancies betwe the results of Drs. Cramer and Mottram's and m own experiments, but these discrepancies can easily understood and explained by anyone famili with the current literature on the relation of vitamin to the protein of the diet.

I am, Sir, yours faithfully,

GLADYS HARTWELL.

King's College for Women, Household and Social Science Department, Kensington, W., Nov. 22nd, 1927.

[1] Biochem. Jour., 1924, xviii., 120 and 1323.

RESIDUAL URINE IN PROSTATIC ENLARGEMENT.

To the Editor of THE LANCET.

SIR,—Many of your readers must have read Cuthbert Wallace's Bradshaw lecture with mu satisfaction and with great appreciation of the criti attitude with which he regards the problems of t surgical treatment of the enlarged prostate. I explanation of the mechanism by which residual uri comes to remain in the bladder after the act micturition, however, I should like to refute.

When the healthy bladder contracts its cavity completely obliterated; as a space it ceases to exi. A single muscle-fibre can only in action contract t certain fraction of its length. If it be stretched t maximal physiological shortening fails to occ. Hence it comes about that the dilated bladder of t prostate loses its power of reducing its inter capacity to nothing. After the greatest effort there still a space which contains residual urine. That t is the explanation can be demonstrated by a sim experiment. If, after the patient has attempted empty his bladder, a soft rubber catheter be pas a certain volume of urine will be drawn off. If n a silver catheter be inserted a further quantity urine will come away. In this second case the tip the catheter impinging upon the apex of the blad will fix it. The power of activity left to the muscu wall will now be sufficient to enable it to contr snugly around the shaft of the instrument, there squeezing out more of the contents. Without su assistance its maximal contraction will still leav bladder space unobliterated. This mechani explains why the bladder will be emptied by a me catheter, even when the eye is at the highest point its cavity, as is usually the case with the pati lying upon his back.

The amount of residual urine is thus a measurem of the degree of stretching that the bladder h undergone and becomes of supreme importance. I when it amounts to about 4 oz. the areas of the urete sphincters are so expanded that the sphincters beco incompetent. Then it is that at every act of mict tion the intravesical pressure, far greater than secretory pressure of the kidney, can be and transmitted upwards along the ureters to the kidn themselves. In this sense the term "back pressur is applicable and expressive. This hypothesis wo

em to be more plausible than that of Sir Cuthbert allace, who assumes that the damage to the kidney due to renal secretory pressure, which would only tenable if the pressure of urine in the bladder were ntinuously raised (which it is not) or the sphincter the ureter went into continuous spasm for which ere is no evidence.

Surgeons will thank Sir Cuthbert Wallace for his marks upon the propriety of distension for the rest of hæmorrhage and his suggestion that the erits of the open operation should be reconsidered.

I am, Sir, yours faithfully,

urrey, Nov. 22nd. CHARLES A. PANNETT.

TREATMENT OF ENCEPHALITIS LETHARGICA: A SUGGESTION.

To the Editor of THE LANCET.

SIR,—The very multiplicity of remedial measures vocated for the treatment of "sleepy sickness" dicates that the therapy of this disastrous disease in a very unsatisfactory state. This is undoubtedly e case even though, to judge from the literature, neficial results are occasionally obtained by the use sodium salicylate, mercurochrome, hexymethylena- ne combined with sodium acid phosphate and a v other remedies, amongst them a serum. One sitates to add to the number of drugs which have en tried in, or suggested for, the treatment of the ate stage of the disease, but, when the results are so satisfactory and the sequelæ of the malady so grave, th from the individual standpoint and that of the blic health, it is perhaps justifiable to advance an gument in favour of a trial of potassium perman- nate intravenously. I am encouraged to do so by e fact that there would certainly seem to be some sis for the use of this substance.

Many years ago Dreyer in Cairo showed that the ernal application of solutions of permanganate of tash is of marked benefit in small-pox. I drew ention to the matter in 1922 (THE LANCET, 1922, 1193) and, at a meeting of the Army Pathology mmittee, discussed the question of the action of rmanganate in this disease with Dr. Mervyn Gordon. a later date Dr. Gordon published an account of his eresting work on vaccinia and variola and showed t potassium permanganate, in a dilution of 1 in 0,000, is capable of destroying the virus of that ease and that it can also destroy the virus of variola a dilution of 1 in 10,000.

There is good reason for believing that the virus of ephalitis lethargica has a certain affinity, probably close one, with the viruses of vaccinia and iola as well as with the herpetic virus. This being s it occurred to me some time ago that potassium manganate might possibly be capable of acting on the virus of encephalitis lethargica. It seemed ar, however, that it could only do so if it were ministered intravenously and, from the nature of drug, I very much doubted if it could be given this route.

With a view to determining its action when given the vein I asked Dr. H. H. Scott if he would carry some experimental work on rabbits. He very dly did so, but had to abandon his investigations being appointed pathologist to the Zoological iety of London. The few data which he collected did seem to me to warrant a trial of the drug in cases encephalitis lethargica, and the matter fell into ayance for the time being. Now, however, I see m the *Indian Medical Gazette* for September, 1927, t J. H. Theodore, I.M.S., military assistant surgeon the King Institute, Guindy, impressed by the value permanganate of potash externally in small-pox l by the work of Gordon on vaccinia, has been ting the efficacy of the drug in vivo as a means of troying the viruses of vaccinia and variola. After eriments on the intravenous injection of per- nganate of potash in rabbits and after finding that, en in this way, the drug appears to exercise a cific and favourable effect on vaccinia in these mals, he proceeded to administer it intravenously in small-pox cases. So far he has only treated three cases in this way, proceeding with great and commendable caution. Naturally no conclusions can yet be drawn as to its efficacy in small-pox, but he has shown that the drug can be safely administered to human beings by the intravenous route, at least in doses of 10 c.cm. in a 1 in 500 solution. A single dose only was given in each case, but he considers that the maximum dose which could be tolerated is probably much in excess of that employed, a conclusion which seems justifiable, as he gave the same doses to his small-pox patients as to his vaccinated rabbits. In the doses he employed potassium permanganate administered intravenously exhibited no toxic properties.

It is of interest to know that Dr. Theodore tested the effect of 10 c.cm. of a 1 in 500 solution of permanganate of potash on himself before administering it to his small-pox patients. He found that it did not affect either liver or renal efficiency. As, therefore, this form of medication can, judging from Theodore's results, safely be employed in man, I think, for the reasons stated, that it might be tried in encephalitis lethargica, especially perhaps in cases where other remedies have proved futile or of little use. I am endeavouring to have such trials carried out and, at a later date, trust it may be possible to report upon them.—I am, Sir, yours faithfully,

London School of Hygiene and Tropical Medicine, Nov. 21st. ANDREW BALFOUR.

ORGANIC HYPNOTICS.

To the Editor of THE LANCET.

SIR,—In an Editorial note following our letter on page 1101 of last week's issue of THE LANCET it is stated, "These drugs have been placed on a statutory list of dangerous drugs." We should like to point out that the statutory position of Dial and barbituric acid derivatives generally is that they are legally regarded as Part I. Scheduled Poisons. The suggestion that they have been placed on a statutory list of dangerous drugs will cause your readers and the profession generally to assume that Dial is legally classed as a Dangerous Drug.

We are, Sir, yours faithfully,

Nov. 18th. THE CLAYTON ANILINE COMPANY, LTD.

*** We have received a similar representation from the Hoffmann-La Roche Chemical Works, Limited, but we are unable to agree that the use of the words "dangerous drugs" (not Dangerous Drugs) in our Editorial note would mislead professional readers. They would presumably know that neither the Dangerous Drugs Acts of 1920 and 1923 nor the Regulations issued thereunder contain any definition or statutory list of dangerous drugs so-called. We are surely entitled to speak of a poison as a dangerous drug when the Dangerous Drugs Acts themselves deal with the sale of poisons under the Pharmacy Act as well as with the restrictions on the possession, &c., of raw, prepared and medicinal opium.—ED. L.

EXTENSION OF THE MILLER GENERAL HOSPITAL.

To the Editor of THE LANCET.

SIR,—In reference to your note on p. 1083 of last week's issue may I say that our extensions, *which we are just taking into use*, consist of: 1. A new ward block containing three fine wards of 24 beds each, with two private rooms for paying patients on each floor. In the basement there is a dining-room and a class-room for the nurses, a servants' dining-room, a new main kitchen, larders, cold storage and ice-making plant, store-rooms, &c. The roof has been designed for giving open-air treatment with a shelter for use in inclement weather. 2. The first part of a nurses' home which will contain 73 bedrooms. The two buildings are costing £100,000, towards which King Edward's Hospital Fund have promised us £16,000 when the remainder (which now stands at £22,000) has been raised.—I am, Sirs, yours faithfully,

HARRY A. BONE,

Greenwich-road, London, S.E., Nov. 18th. Secretary

Obituary.

GEORGE COWELL, F.R.C.S. ENG.,

CONSULTING SURGEON TO THE WESTMINSTER AND THE ROYAL WESTMINSTER OPHTHALMIC HOSPITALS.

WE regret to announce the death of Mr. George Cowell, which occurred at his residence in Nevern-square, London, on Nov. 18th, at the great age of 92. He had outlived all his contemporaries, but to the end maintained a large circle of friends within and without the medical profession, generations of the former having been his pupils or having served with him as his juniors in various capacities.

George Cowell was the son of an Ipswich surgeon of the same name and was born in the last year of the reign of King William IV. After serving articles to a practitioner in Birmingham, as was the method of joining the medical profession in those days, he entered St. George's Hospital as a student, and held minor and residential appointments under Gray, the anatomist, Prescott Hewett, and Timothy Holmes. In 1858 he took the diploma of M.R.C.S. and shortly afterwards was appointed surgeon to the Saints George and James Dispensary. At the same time he became clinical assistant at the Moorfields Hospital, where he studied his special branch of surgery for ten years, though he remained for a long period a general surgeon like other ophthalmologists of his date. In 1867 he took the Fellowship of the Royal College of Surgeons of England and was shortly afterwards appointed assistant surgeon to the Westminster Hospital, with which institution he was connected until the day of his death, that is for no less than 56 years. Throughout the whole time he served the charity nobly. He lectured at the hospital on surgery for 20 years, and being promoted full surgeon in 1878 held that post until he was appointed consulting surgeon in 1896. The period covered the rebuilding of the out-patient department, the medical school, and the chapel, with all of which work he was closely associated. He was Dean of the school for five years, and at the expiration of this office he became treasurer of the hospital and held that post for a further 15 years. While still assistant surgeon to the Westminster Hospital he was appointed surgeon to the Royal Westminster Ophthalmic Hospital, a post which he held for 27 years; and here again not only did he give his scientific services but he took an active interest in the management of the institution.

Next to his work as an ophthalmic surgeon, and closely associated with that work, must be mentioned Cowell's activities in behalf of children. In 1866 he was the virtual founder of the Victoria Hospital for Children in Chelsea, and for 20 years he was associated as surgeon and ophthalmic surgeon with the new institution. During the same period he found time to hold the appointment of surgeon to the East London Hospital for Children, and also to lecture on surgery and ophthalmology at the School of Medicine for Women founded at the Royal Free Hospital in 1874.

As an author Cowell is well represented by his clinical addresses, and by the many papers contributed to the reports of St. George's Hospital, Westminster Hospital, and the Westminster Ophthalmic Hospital, while special reference must be made to his lectures which were published in THE LANCET at various periods from 1880 to 1887. The greater part of his writing consisted of notes on surgical procedure and records of special operations; these were published in various medical journals as well as in our columns and show the wide range of their author. He also was the author of "The Life and Letters" of his relative, Edward Byles Cowell, the well-known Oriental scholar.

It was natural that Dr. Barnardo should turn to Cowell for assistance when the well-known Homes for neglected children were founded, and no medical man did more than he for the establishment of this fine philanthropy upon sound grounds. No doubt its religious side had particular attraction for him as he was a zealous supporter of the Guild of St. Lul and except for the Rev. Canon Henry Arnott w at his death the senior brother of the Guild; on t chronological roll of the Fellows of the Royal Colle of Surgeons of England Cowell's name stands seco and Arnott's fourth.

Mr. W. G. Spencer writes of his old friend: "I h the honour of being Cowell's colleague at the We minster Hospital, but when I was elected he h already been senior surgeon and the senior on t medical staff for many years. It was well kno that he had headed the efforts of the staff in all t various improvements at the hospital and in t medical school, of the history of which he possess profound knowledge. Soon after my appointme he called a meeting at his house, at which the la Charles Stonham and I were invited to express o opinions. Mine, naturally, were those which I h picked up during six years of work at St. Bartho mew's, and I remember Cowell's courteous attenti intent on making the machine work smoothly, as did, until his retirement nine years later. In gene surgery he was level with his day; he accept Lister's methods without attempting to extend t scope of surgery which those methods facilitat Indeed, the special attention he had devoted ophthalmic surgery disposed him to smaller operati and finer manipulations. I had watched Her Power and Bowater Vernon when operating cataract, as I did subsequently Cowell, and I thi that his handwork was not then to be better After retirement from the active staff he attend hospital committees as a vice-president, at first re larly and then with decreasing frequency, and t last occasion occurred when he led the medical st at the service in the Abbey commemorating t reopening of the hospital after alterations in July, 192

George Cowell was, as this brief notice shows, learned and conscientious man, whose high standa of living and devotion to duty enabled him to act a pioneer in good works and to offer firm supp to colleagues in the discharge of joint responsibiliti

He married late in life Elizabeth, widow Dr. Hamilton Roe, and daughter of Mr. John Laur M.P.; there were no children and his wife p deceased him.

JONATHAN DALGLIESH, M.R.C.S. ENG.

Dr. Dalgliesh, who died at Newcastle-on-Tyne Nov. 9th, was born in 1839, and was educated the Newcastle College of Medicine. He spent m of his life in his native city, for after a short peri in London, where he qualified as L.S.A. a M.R.C.S. in 1862, he returned to the North practise as assistant to Dr. Raine and later to J Frederick Page. At the time of his marriage he s up in practice by himself and he remained co tinuously at work in various parts of the city un 1901. In that year he retired and went to live Harrogate, but on the death of his wife soon afterwa he returned to Newcastle, and for 11 years carri on, single-handed, a medical mission at Shieldfie A serious illness followed, but soon after the w broke out Dr. Dalgliesh was well enough to return practice once more to take the place of a young man, and gave much useful help, especially as anæsthetist to Newcastle practitioners and hospita Even after his final retirement in 1919 he took great interest in medical work and progress, and acted as public vaccinator until 1921. We ha received the following appreciation which spea further to his personal qualities: "He was a m energetic man and a real doctor; the best type general practitioner, always anxious to relie suffering and cure disease, and as anxious to lea and improve his knowledge of the science and art medicine and keep abreast of the times. He w most self-denying and never weary; I never on heard him say that he was tired, and he wou cheerfully work day and night in times of epidemi His generosity was as great as his courage, and it w always his earnest desire to promote peace and hap

s among those around him. Surely he can say h St. Paul, 'I have fought a good fight.'" During last few years of his life he suffered from failing s of sight and hearing, and these disabilities, ugh he bore them with patience, were a considerable uble to him, for he had drawn much pleasure n books.

)f Dr. Dalgliesh's five sons, the second, Dr. C. A. gliesh, was an ophthalmic surgeon in Sunderland died in 1910. His eldest son is Dr. J. W. gliesh, of Sutton. He leaves three daughters.

WILFRID WILLIAM PEARSE, M.D. ABERD., D.P.H.

)r. W. W. Pearse, late medical officer of health of ng-Kong, was a Devonshire man, his father being hysician before him. He received his medical cation at the University of Aberdeen, where he luated as M.B. in 1893 and took the D.P.H. in 4. After qualification he travelled extensively in East and eventually joined the Colonial Medical vice. He held the appointment of assistant lical officer of health at Hong-Kong for several rs before his promotion to the senior post, and ng this time he devoted considerable attention to plague work; his thesis for the M.D. in 1906 on the subject of bubonic plague, and was classed he best of the year. During the late war Dr. rse joined the Royal Army Medical Corps, rning to England via Siberia for the purpose, an ıtful journey in those times of difficult travel. saw service in France, and at the conclusion of ilities resumed his work in Hong-Kong. On hing the age-limit, he retired in 1926, after nearly years' service in the Colony. The Chinese staff e him a picturesque farewell dinner and he ived many gifts from friends and colleagues. was a man of unusual ability, whose learning was) and curious. He read widely, was an accom- ed linguist, and took a keen interest in microscopy bacteriology. His knowledge of public health, cially in the Far East, was excelled by few, and vas only his extreme modesty and dislike of icity which prevented his becoming well known his field of work. His talents were eminently ted for research, but he was not given facilities he Hong-Kong Government, and thus the greater of his time was devoted to the varied activities ne sanitary department, to the loss of epidemio- al science. He put all his energy into bringing department to a high state of efficiency, and it esented his life work, for his long service in the ics undermined what had been a strong consti- n, and he left Hong-Kong with little hope of ining his health.

. Pearse, whose death took place at Villefranche- ner on Nov. 11th, had many friends who will deeply t his untimely death. He leaves a widow and g daughter.

JOHN CARLYLE JOHNSTONE, M.D. GLASG.

. Carlyle Johnstone, whose death is announced, for many years medical superintendent of the burgh District Asylum at Melrose, and though d lived in retirement at Droitwich for some years, well remembered in the North by a large circle d colleagues. He was visiting a medical friend dinburgh at the time of his death, which came pectedly and suddenly. Born at Hobkirk, in county of Roxburgh, in 1855, he was educated rivate schools in England, Dumfries Academy, the University of Glasgow, where he graduated edicine in 1877 with distinction in most of his cal classes, having gained five medals. In the wing year he was appointed assistant medical r at the Fife and Kinross Asylum, and in 1880 ecame assistant physician to the Royal Edin- h Asylum, under the late Sir Thomas Clouston, n he assisted in the preparation of his "Clinical ures." In 1885 he went to the Roxburgh District um as medical superintendent, and there he remained until 1917, when he resigned on account of ill-health. During the period of his control the institution expanded considerably; fresh land was purchased, a new and satisfactory water-supply was obtained, and electricity was installed.

Dr. Johnstone was greatly interested in the nursing of the insane and devoted much energy to training his nursing staff. He was partly instrumental in securing the passage of the Act under which service in the Scottish District Asylums became pensionable, and he drew up a scheme of practical training for those engaged in mental nursing, which was found useful in other institutions. He also took an active part in the work of the local division of the British Medical Association, and was elected by the county council as a medical member of the Roxburgh County Insurance Committee. A few months after his resignation Dr. Johnstone was sufficiently restored to health to take up work under Dr. G. M. Robertson, as junior assistant physician at Craig House Mental Hospital, and he remained there until some months after the Armistice. His private interests were chiefly literary and artistic. A man of wide reading he was unassuming in character and averse to the limelight. "He was always ready," writes a colleague, "to place his experience and knowledge at the disposal of anyone who sought his advice and guidance, and his best memorial is the institution which he served so long and so well, and which under his able management became a model of what such an institution should be."

Dr. Johnstone is survived by his wife, a daughter of Deputy Surgeon-General Andrew Fleming, of the Bengal Army, and by a son and daughter. His son is at present medical officer of health at Nairobi in Kenya.

HOUSEKEEPING IN INSTITUTIONS.

THE task of catering for an institution of any kind, be it hospital, school, nursing home, hostel, or Poor-law institution, if it is to be well done from the health point of view and yet cheaply, calls for special preparation and high qualifications on the part of the woman who undertakes it. In a pamphlet entitled "The Reform of Institutional Housekeeping: A New Career for Women," which has been issued by the Food Education Society (24, Tufton-street, London, S.W. 1), Mr. C. E. Hecht outlines the dietaries which now obtain in hospitals and nursing homes, boarding schools, and hostels, and goes on to describe the steps which the Society has taken since 1910 to improve the situation. America and Canada, he points out, have gone much further than this country in training women to hold posts as dietitians in institutions. Several leading hospitals only accept candidates who hold a degree in household science, and this involves an academic training of four years, followed by a professional training, usually of six months, in the dietary department of a hospital. The result of employing these dietitians has given great satisfaction to the boards, the medical staff, and to the patients. Mr. Hecht considers that in England the problem of feeding in the hospitals has not yet received much attention and that the people into whose care it is entrusted are not experts. He recognises improvements of late years; since 1925 the Metropolitan Asylums Board have only appointed fully trained and experienced women to act as kitchen superintendents in their hospitals; facilities for training women are also afforded in many schools, notably by King's College for Women, which offers a three years' course in institutional administration; the University of London, too, grants a degree in household and social science. Yet qualified women are far too seldom employed, and he suggests that governors and committees of hospitals, schools, and other institutions must be made to realise that the presence of an educated and highly trained woman makes for efficiency and economy as well as the health of the residents. As a considerable time must elapse before reform on a large scale comes into force, it is suggested that post-graduate courses in dietetics should be arranged for hospital matrons, heads of schools, homes, residential halls, and other institutions, as well as for housekeepers and cooks.

ROYAL HALIFAX INFIRMARY.—A gift of £10,000 has been received from Mr. Ernest Shaw Redman for the provision of two open-air wards and the building and equipment of a pathological laboratory.

ROYAL NATIONAL ORTHOPÆDIC HOSPITAL.

NEW OUT-PATIENT AND ELECTRICAL DEPARTMENT.

ON Tuesday last Prince Henry, President of the Royal National Orthopædic Hospital, received the guests at the formal opening of the new out-patient department by the Lord Mayor of London. A preliminary religious service was conducted by the Dean of Westminster. In welcoming the Lord Mayor, Prince Henry assured the company that the new building was already entirely paid for, and had been erected with a stern eye to economy. It had not come too soon, for in 1908, when the main buildings had been opened, the annual number of out-patients had been 11,000, and the aim had been to provide for 20,000. Last year the number had approached 78,000. The decorations marked a new era, in which patients were to be cheered by beauty instead of depressed by the gloom of a railway station waiting-room.

The Lord Mayor, in reply, complimented the hospital on its success and on the work it did for middle-aged patients as well as children. After he had declared the new buildings open, the President and guests made a tour of the various rooms, and saw patients at exercise in the gymnasium, clad in their purple tunics.

The New Waiting-room.

The extension, which is approached through a new main entrance in Bolsover-street and a wide bright corridor, centres round a large and attractive waiting-room. Broad mahogany doors lead to the various departments through five bays on each side of the hall and two at the far end. Below the mid-line of the bays the colour is dark ivory; above it is light ivory. Above the doors in each bay are paintings representing the months of the year, the work of Miss Nan West, a young artist trained at the Slade School. A big panel representing a picnic scene, "June and July," is at the far end of the room, between the two doors. The medium is a washable wax, and the execution is consistently gentle, with a quiet gaiety; a fitting expression of the desire hopeful and happy patients. Above the frieze roof is coved, and the cove is broken by large se circular windows above each of the ten side ba which are separated by pillars. The lighting is opal electric globes, suspended opposite each win space.

The Treatment Rooms.

Off the waiting hall are the consulting and dress rooms, an operating theatre for minor operati and sterilising, anæsthetising, plaster, and recov rooms. Leading from the hall is a corridor wh gives access to rooms in which patients are measu for and fitted with surgical boots, instruments, The exit is from the further end of the hall and le into Euston-road, so that cross traffic within hospital is eliminated. A second corridor from hall leads to the electrical department. The old o patient department has been remodelled and adap

Waiting-room of the new out-patient department of the Royal National Orthopædic Hospital.

for physio-therapeutic treatment, and contains ro for all the modern forms of electric massage light treatment, the old hall itself being used a gymnasium. The old electrical department has been reconstructed, and now contains a large ro for X ray work with dark room adjoining, as wel accommodation for medical officers, waiting patie and private treatment. The basement under the out-patient department is filled with large worksh for instrument makers. These are well lit and ve lated and contain the most modern machinery instrument work. The front portion of the build facing Bolsover-street has a first and second flo the first floor provides quarters for medical offic and a large lecture and reading room, whilst second floor consists of bedrooms for nurses. further feature is the provision of panel heat which warms wall and ceiling surfaces, and elimin pipes and radiators, thereby leaving fewer places dust and dirt to collect.

This hospital has also an in-patient departmen Great Portland-street of 200 beds, and a cou branch, in itself a fully equipped hospital, 11 miles away, with over 200 beds. The sum £40,000 is wanted to complete the extensions at country branch at Stanmore, which will provide cases of crippling from infantile paralysis, from b

formities and rickets, and from surgical tuberosis. This was the first hospital in the country to nbine education with treatment, and the children leaving the hospital can compete on equal terms h their more fortunate brothers and sisters.

IE OUTBREAK OF PARATYPHOID IN WEST HERTFORDSHIRE.

THE recent outbreak of paratyphoid B involved ts of the borough and rural district of Hemel mpstead and the adjoining border of the rural trict of Watford. The date of onset of the first e was Oct. 25th, and the majority of cases veloped during the first week of the present month, brunt of the attack falling on the 4th. Up to e 134 cases have been notified; the epidemic is v on the wane as only a few delayed cases have n reported during the past week. The type of er was early detected by means of the Widal ction and the clinical features in the early and sequent cases were characteristic of paratyphoid B. mmediately the existence of the outbreak became wn steps were taken to provide adequate hospital ommodation and to deal with the source of infec-n. As the notifications came in it became apparent t, although many of the cases were separated by a siderable distance, there was one factor common all—namely, the milk-supply. Steps were taken ecure the sterilisation of the supply from a certain y. This dairy received milk from ten different rces, one of which was pasteurised. The next step to examine the blood of all those who were in any concerned with handling the milk at the dairy to ascertain the conditions obtaining in the nine ns which sent supplies to the dairy, more especially n reference to the presence of any recent case of ss. The results may be summarised as follows:—

Two cases of paratyphoid occurred at the dairy, one he 11th and the second on the 17th. These were ediately removed to hospital.

Blood tests showed that the dairyman and five of his dsmen gave a positive or partially positive Widal tion. They were all removed to hospital for examination whether they were passing *paratyphosus B* in fæces or e.

At one farm a case of illness was discovered, the nt being a child, aged 3½, who subsequently gave a ive Widal reaction. This farm also supplied directly houses with milk and in one of these houses two cases aratyphoid occurred. This child, with her mother, was ved to hospital.

seems that the primary source of infection was child at the farm who infected the milk supplied he retailer, and through this induced a secondary ce of infection by infecting some of the members he dairyman's household and his staff. A second n was under suspicion where there was an oldier who had been in Mesopotamia, but samples blood gave negative results. All the milk lied from the nine farms has been examined eriologically.

he removal to hospital of over 100 cases was not ated by the gravity of their condition, but was rded as an essential precautionary measure. No s will be discharged until they are proved to be carriers of *paratyphosus B*. The general type of disease was mild although some serious cases rred; so far there have been no deaths. The t was acute with high temperature and headache, rged spleen, and constipation (occasionally diar-a). The paratyphoid exanthem was well marked, s appearing in some cases on the arms, and ed useful in diagnosis.

OYAL SUSSEX COUNTY HOSPITAL.—The casualty emergency departments of this hospital have long been ed to the utmost to meet the daily call made upon , arising in the main from the modern conditions of port and motor traffic. A donation of £10,000 has been given by Mr. Bernhard Baron towards the contion of a new department.

Parliamentary Intelligence.

HOUSE OF COMMONS.

WEDNESDAY, NOV. 16TH.

Treatment of Young Offenders.

Mr. CADOGAN asked the Secretary for the Home Department what steps he proposed to take to give effect to the recommendations of the Young Offenders Committee.—Sir W. JOYNSON-HICKS replied: The report of this Committee covers too wide a field to be dealt with fully in an answer to a question, but I will make a short statement. Generally speaking I accept the principles of the Committee's scheme for dealing with neglected children and young persons and with young offenders under 21, though I must not be taken as endorsing all its recommendations, some of which involve difficulties on financial or other grounds. Many of the recommendations do not require legislation. For instance, a great deal can be done by justices under their existing powers to establish juvenile courts on the lines recommended by the Committee. On Sept. 30th I sent out a circular on the subject to every court of summary jurisdiction, and I hope that all justices will take the opportunity of reviewing their procedure in the light of the suggestions made. In London I have appointed a small committee to consider the organisation of the juvenile courts. Some other proposals to which effect can be given by administrative action are being dealt with as quickly as possible. As regards recommendations which involve legislation, I have already given instructions for the drafting of a new Children Bill to amend and possibly to consolidate the Children Act of 1908. This is a task which will take time to complete, but there will be no avoidable delay. It would be premature at the moment to say when it will be possible to introduce a Bill. It is hoped to include not only many of the recommendations of the Young Offenders Committee, but also some of the suggestions of the Sexual Offences Committee concerning child welfare and of the Child Adoption Committee relating to the registration of voluntary homes. Some of the proposals of the Young Offenders Committee would involve considerable expenditure from public funds, and, as the House will readily appreciate, the consideration of these is affected by the financial situation. As I said in answer to a question the other day, I am in favour of Central Remand Homes, but there are difficulties—administrative as well as financial. The Committee did not enter fully into the details of its proposed scheme, but I am taking steps to examine the problem and to ascertain whether anything can be done now, even if only by way of an instalment of a fuller scheme. As regards Borstal institutions, there is already a need for one new institution, and I hope that this may be provided as soon as the financial situation permits. I sympathise with the desire of the Committee to avoid the imprisonment of young offenders under the age of 21, and I propose to explore every avenue which may help to the attainment of this object so far as it is justified and practicable, but there are some cases in which a sentence of imprisonment is called for. Every encouragement is being given to the development of the probation system, and I am considering the best way of extending the resources of that system by the use of hostels on the lines suggested by the Committee and in other directions. The report of the Committee is receiving, as it deserves, the fullest attention.

Importation of Foreign Skimmed Milk.

Sir ARTHUR HOLBROOK asked the Minister of Health whether it was proposed to prohibit the importation of skimmed milk, which was exempted from the standards of quality and purity with which British farmers had to conform, and whether the result of inquiries had established that the skimmed condensed milk so imported was not fit for human consumption.—Sir KINGSLEY WOOD, Parliamentary Secretary to the Ministry of Health, replied: The inquiries which my right hon. friend caused to be made in Holland and Denmark show that the condensed skimmed milk which is imported from those countries is produced under conditions as good as those existing in this country. My right hon. friend is advised that the commodity is certainly not unfit for general consumption, and he cannot take any steps to prohibit its importation on grounds of public health.

Pithead Baths.

Mr. GRUNDY asked the Secretary for Mines the total number of pits with pithead baths and the number of baths provided.—Colonel LANE-FOX replied: Excluding slipper baths, plunge baths, swimming baths, and baths provided for officials only, 32 pithead bath installations had been completed by the end of 1926 and four were in course of construction. The number of bath cubicles in these installations is 1954. I know of at least one additional installation

with 66 cubicles which has been commenced during the present year by the Miners' Welfare Committee, but I shall not have complete returns for 1927 until early next year.

Accidents at Mines.

Mr. GRUNDY asked the Secretary for Mines to give the latest available figures of fatal and non-fatal accidents to persons employed at the mines and the corresponding figures for 1925 and the percentage in both periods to the number employed.

Mr. WILFRID PALING asked the Secretary for Mines to give the number of accidents, fatal and otherwise, in mines from January, 1927, to the last convenient date.—Col. LANE-FOX replied: During the first ten months of 1927 there were 943 deaths from accidents at mines under the Coal Mines Act and 3889 persons were seriously injured. The death-rate per 1000 persons employed was ·91 and the serious injury rate 3·76. The corresponding figures for the first ten months of 1925 were 923, 3607, and ·82 and 3·22 respectively. I regret that comparable figures as regards the less serious non-fatal accidents are not yet available.

Cost of Food in Poor-law Establishments.

Mr. CECIL WILSON asked the Minister of Health the average weekly cost per head for food and drink in the case of children's homes, men and women, respectively, in Poor-law institutions, apart from the hospitals and in asylums.—Mr. CHAMBERLAIN replied: According to returns furnished to me the average weekly cost per inmate for the year ended March 31st, 1926, of the provisions supplied to the inmates of the separate Poor-law establishments for children (other than institutions wholly appropriated to sick children) in England and Wales for which separate accounts are kept, was 4*s.* 7*d.* According to the same returns the average weekly cost per inmate, for the same year, of the provisions supplied to the inmates (men, women, and children) of the general Poor-law institutions (i.e., institutions other than those wholly appropriated to the sick and mentally infirm and establishments for children in cases where separate accounts are kept) was 5*s.* 5¼*d.*

Vitamin A and Food Values.

Viscount SANDON asked the Minister of Health whether his expert advisers had examined, and would issue a report on the relative figure value as to vitamin A of sheep and oxen liver fats and the best butter for children.—Mr. CHAMBERLAIN replied: The occurrence of vitamin A in a variety of foods, including ox and pig liver and butter is dealt with in the "Report on the Present State of Knowledge of Accessory Food Factors (Vitamins)," issued by the Medical Research Council. The report does not contain any specific reference to sheep's liver, but I am advised that there is no reason to suppose that this article would differ materially from ox liver.

THURSDAY, NOV. 17TH.

Lease of Bellahouston Hospital.

Mr. BUCHANAN asked the Minister of Pensions if he had yet come to any agreement with the Glasgow Corporation as regards the continuance of the lease of Bellahouston Hospital; if so, for how long; and if he had considered any alternative building for the future.—Major TRYON replied: I am informed that the Glasgow Corporation have resolved that the Ministry's present lease of the site of Bellahouston Hospital be extended to Whitsuntide, 1929. The question of the provision to be made for patients after that date will receive the attention of my department.

Government Lymph Stocks.

Mr. GROVES asked the Minister of Health if he would state what were the original sources of the vaccine lymph stocks at present in use at the Government lymph establishment; what substances were now added to the lymph in the process of manufacture; and whether the lymph material was completely sterilised before being issued so as to secure that it should contain no living disease germ.—Mr. CHAMBERLAIN replied: The records show that the lymph now used at the Government lymph establishment is derived from calf lymph originally obtained from Cologne, and the strain has since been carried on by repeated transference from animal to animal. The substances now added to the lymph are glycerine, distilled water, and oil of cloves. The lymph complies with the standards laid down in the Regulations made under the Therapeutic Substances Act, 1925, but it is not completely sterilised, as otherwise its active principle would be destroyed.

Insured Persons and Dental Treatment.

Mr. WILLIAM M. ADAMSON asked the Minister of Health whether he could give under national health insurance the total number of dental treatment cases and the cost for the six months of the financial year.—Mr. CHAMBERLAIN replied: The complete information asked for by the hon. Member is not available. Certain figures have, however, been obtained from a number of the largest societies, with a total membership of over 6,000,000 insured persons, and these show that during the 12 months from July, 1926, to June, 1927, the number of claims for dental benefit sanctioned by these societies was 571,435, at a cost to the societies of £1,426,82 It is estimated that the total number of claims sanctioned in the year by all approved societies was about 1,100,0 and the cost about £2,500,000.

Old Age Pensioner and Disqualification.

Mr. ROBINSON asked the Minister of Health if his attention had been drawn to the case of Mrs. S. A. Helliwell, Prescott-terrace, Stainland, Halifax, who had been deprived of her old age pension on the ground that she is an inmate of St. Luke's Hospital, Halifax, a Poor-law institution, despite the fact that she entered the institution on the advice of her private doctor, was a paying patient, and had paid poor and district rates for her private dwelling; and whether he would issue instructions for the old age pension to be reissued with arrears from the date of suspension.—Mr. CHAMBERLAIN replied: An appeal by Mrs. Helliwell against the decision of the local pensions committee, that she has become disqualified for continuing to receive an old age pension by reason of having been an inmate of a Poor-law institution for the purpose of receiving medical or surgical treatment for a period exceeding three months, was received by me on the 12th instant. The case is now under investigation, and a decision will be given as soon as possible.

Horses and Chemical Warfare Experiments.

Mr. CADOGAN asked the Secretary of State for War the number of horses which died in the course of, or had to be destroyed as a consequence of, experiments at Porton chemical warfare station during August, September, and October, respectively; and whether the use of animals in these researches could now be dispensed with.—Sir WORTHINGTON-EVANS replied: No horses were used in experiments at the Porton chemical warfare experimental station during the months referred to. As regards the latter part of the question, experiments with animals are unfortunately essential in order to obtain the necessary data for ensuring adequate defence against poison gas and for evolving efficient methods of treating gas casualties.

Bodies of Paupers and Anatomical Research.

Mr. DAY asked the Minister of Health whether he had received any protest from boards of guardians in reply to the letter issued by his department asking the boards of guardians to hand over the bodies of paupers who die in their institutions, and who were without friends and relations to the medical schools for anatomical purposes; and whether poor and friendless persons were given an opportunity of specifying before they died what should be done with their bodies after death.—Mr. CHAMBERLAIN replied: Some boards of guardians have declined to exercise their powers under the Anatomy Acts, but I am not aware that any protest has been received. As regards the second part of the question, any inmate of an institution may express a desire that his body shall be interred without anatomical examination, and Section 7 of the Anatomy Act, 1832, provides that such a wish shall be respected.

FRIDAY, NOV. 18TH.

Landlord and Tenant Bill.

On the motion for the third reading of the Landlord and Tenant (No. 2) Bill,

Mr. DALTON complained that the measure was small and inadequate. Professional men were wholly excluded from the benefits of compensation for goodwill and they were only brought in as an afterthought and largely as a result of pressure from Members of the Labour Party in Committee. They were brought in to some extent in respect of compensation for improvements, but they were given far less than one-half of that to which they were entitled. The professional man, the doctor, the dentist, and so on, stood to gain very much more from a recognition of his right to compensation for goodwill than from a recognition of his right to compensation for structural improvements, which comparatively speaking such tenants seldom made, and therefore the professional man got next to nothing out of this Bill. But even so small, so miserable, and so paltry a measure would command the support of the Labour Party because they regarded it as the very thin end of a second wedge. That wedge having been inserted into the door they hoped to drive it in a great deal further in future.

Sir P. PILDITCH said the principal change undoubtedly which the Bill brought about was that in respect of all business premises and also a large number of premises of a residential character occupied by professional men, the whole of the settlement of questions arising between landlord and tenant would be taken out of the region of private arrangement and out of the play of supply and demand and free contract and placed in the hands of the tribunal.

ieved that if the tribunal were used, and if the provisions the Bill itself were very largely used by landlord and ant, it would not produce the desired effects. In that nt there would be uncertainty in regard to property ich had been apprehended by most of those who had picions about the Bill, and the general result would be t instead of it doing any good to either landlord or tenant re would be a general rise of rents. He hoped that the would not operate in detail at all, but that it would uce landlords and tenants to come together and appeal ther to the courts nor to the tribunal.

Ir. HARDIE said that with the great development in lical science to-day men in that profession had to have kinds of electrical and other apparatus, special kinds of hs and lights. In the same way as the ordinary iness man they ought to come under this Bill for any d or bad that was in it.

fter further debate,

he Bill was read a third time by 149 votes to 64.

MONDAY, NOV. 21ST.

Closing of Pensions Hospitals.

Ir. ERNEST BROWN asked the Minister of Pensions ch hospitals had been closed during the four years ing Oct. 31st, 1927; how many ex-Service orderly staff were ineligible for unemployment benefit had been harged; whether it was proposed to close any more oitals during the next financial year; and, if so, how ny ex-Service orderly staff would be discharged without other assistance than that of the local guardians.—t.-Colonel STANLEY (Parliamentary Secretary to the istry of Pensions) replied: The number of Ministry oitals (including treatment and training centres) closed ng the four years ended Oct. 31st, 1927, was 19, and number of ex-Service orderlies ineligible for unemploy- t benefit thereby discharged was approximately 470. ar as can be foreseen at present, three hospitals will be ted by accommodation changes contemplated during next financial year. The net total reduction of ex-Service rlies ineligible for unemployment benefit will probably exceed 30.

Old Age Pensioners and Medical Treatment.

r. GROVES asked the Secretary to the Treasury whether old age pensions were paid to persons who at be in receipt of medical treatment extending over a th in a Poor-law institution; and whether such pension, yable, should be collected by the next legally responsible on to the ordinary recipient; (2) whether he was re that during the week ended July 6th, 1917, 117 old pensioners, who were inmates of various institutions r the West Ham Board of Guardians, had their pensions cted by the said board and applied toward the cost of maintenance whilst in receipt of medical treatment; whether, in view of the provisions of the Old Age ions Acts, he would prohibit this practice.—Mr. A. M. UEL replied: A person who enters a Poor-law institution he purpose of obtaining medical or surgical treatment ot thereby disqualified for the receipt of an old age ion until three months from the date of his entry into institution, if he continues to receive such treatment ng that period. It is a fact that the West Ham Board guardians, in common with some other boards of dians, collect the pensions of inmates of their insti- ons; but in every case the pensioner has signed a form inting an officer of the guardians as his agent to collect pension, and there is no authority in the law under h such a practice could be prohibited.

Insured Persons and Specialist Medical Service.

r. HORE-BELISHA asked the Minister of Health whether ad now received the recommendations of the consultative cil regarding the proposals made by the Royal Com- ion on National Health Insurance that the scope of benefit should be extended to include a consultant and alist medical service, and that the necessary funds for purpose should be obtained by a partial pooling of e surpluses of approved societies; and what action it proposed to take.—Sir KINGSLEY WOOD replied: My hon. friend has now received the views of the con- tive council on the proposals referred to by the hon. ber, and they are having his most careful consideration, he is not yet in a position to make any statement on matter.

The Indian Medical Service.

r. SPOOR asked the Under Secretary of State for India ther he was aware that at a selection test held in August in India, to select candidates for permanent com- ions in the Indian Medical Service, only those candidates ing an English degree were successful; whether, in of this fact, instructions had been issued by the tary of State that those candidates who possessed an medical qualifications alone were unfit for per- nt commissions in the Indian Medical Service and that for this an English degree was necessary; and whether, in view of the recommendations of the Indian Students' Committee presided over by Lord Lytton in 1921, he could state the position of the Government of India and His Majesty's Government in the matter.—Earl WINTERTON replied: The answer to the first part of the question is in the affirmative and to the second in the negative. Candidates who possess the necessary qualifications prescribed by the regulations, whether they have been obtained in India or in this country, are selected strictly on their merits. As regards the third part of the question, I am not aware of any definite recommendation made by the Committee on Indian students on this subject. I can, however, assure the right hon. gentleman that every effort is being made to improve the standard of medical teaching in India.

Mr. WILFRID PALING asked the Under Secretary of State for India whether it was the policy of the Government of India and of His Majesty's Government to recruit candidates to the Indian Medical Service from Europeans rather than from Indians; and whether he was aware that the expense to the Indian taxpayer was very much heavier in the case of European than in the case of Indian medical men.—Earl WINTERTON replied: Recruitment for the Indian Medical Service is carried out strictly on a ratio of two Europeans to one Indian. This in present conditions has the effect of increasing the number of Indians in the Service. All officers draw the same rates of pay, but those of non-Asiatic domicile receive certain benefits to compensate for permanent service abroad. The additional expense in the case of the European officer is relatively small.

TUESDAY, NOV. 22ND.

Medical Practitioners' Privilege.

Dr. E. GRAHAM LITTLE, in asking leave to introduce the Medical Practitioners' Communications Privilege Bill, said that it was a measure which was intended to remove something like a deadlock which had resulted from a conflict between the regulations issued by a Government department in 1916, and the law as interpreted by certain recent legal decisions. In 1916 the Royal Commission on Venereal Diseases issued its report. Its personnel was admirably authoritative and representative. It included Mr. Philip Snowden, who had done him the honour to put his name on the back of this Bill. Unhappily there was a popular belief that venereal disease was a special order of disease resulting from excessive indulgence in a normal function, that this disease deserved punishment, and that people got it in some mysterious way which differed from other disorders. That view had never been held by the medical profession, and he hoped that it was out of date in this country. In practice venereal disease led to two dissimilar effects—syphilis and gonorrhœa. The report of the Royal Commission showed an unexpectedly high percentage of both diseases in this country. It was established by the evidence given before the Commission that syphilis ranked third as a killing disease, coming after cancer and tubercle. Perhaps it ought to come first, because in many cases it produced the two other diseases. Besides being very mortal, particularly among young children, slaying tens of thousands of victims, it was, with its companion diseases, easily the first of all the disabling diseases known to-day. Syphilis, in particular, was primarily responsible for a large proportion of cases of insanity, and for a long string of diseases of the nervous system which made life a prolonged agony. Evidence was given in the report of the Commission that at least one in every ten persons in our community were affected, and more than half the total number of cases of blindness in young children was due to this curse. The medical position of these cases might be summed up in an epigram of a medical man: "Who knows all about venereal diseases knows all about medicine, because they affect every organ and tissue of the body." The state of affairs disclosed by the report of the Commission was so appalling that immediate action was called for, and was happily taken. In consequence and pursuance of the recommendations of the Commission the Local Government Board, in the same year as the report was published, inaugurated a system of clinics for the treatment of this disease throughout the country, and issued regulations for their conduct. The foremost and most important among these regulations was an instruction to medical practitioners and other persons concerned that all information obtained as regarded any persons treated in these clinics should be regarded as absolutely confidential. The evidence before the Commission demonstrated that it was necessary for the success of any measure for the treatment of venereal disease that the patient should be fully assured of secrecy. The reason was surely obvious. Modern methods of treatment had completely revolutionised the prognosis of this disease, and a condition was that early treatment should be instituted. Irreparable mischief might result, and had resulted, from the disinclination of the victims of the disease to consult their family doctor. The reasons for that were obvious.

It was almost impossible to have the disease treated at home, and to conceal its nature. But the same patient would go to a clinic, where he was identified only by a number, and where he knew that he would get the very best treatment that the medical science of the time could afford. Under the present rules patients went to the clinics and received explicit assurances that no information whatever concerning their disease would be divulged, and that assurance was fortified by the issue of a leaflet, in which the same promise was given, emanating from the Ministry of Health, and carrying with it therefore the authority of Parliament. The success of these clinics rested upon two factors—the enthusiastic coöperation of the medical practitioner in charge, and the complete confidence of the patient treated. That coöperation and that confidence had been abundantly won by the assurance of secrecy. Doctor and patient alike had felt secured by the ministerial regulations from any possibility of being compelled to make any disclosure of these confidential communications. But the security had been completely shattered by the decision, given in Birmingham last July, by Mr. Justice McCardie, when a doctor was ordered to disclose the character of the disease from which his patient was suffering, although he had acted under the explicit protection of the regulations framed by the Ministry of Health. Medical men thus found themselves forced to betray the trust of their patients, and he contended that that betrayal was really an affront to Parliament, because Parliament must be responsible in some measure for the acts of one of its most important Ministers. The position which the Bill sought to remedy was that complete privilege should be given to communications, which had been erroneously supposed for the last 12 years to be privileged. It was clear that either the law must be amended in the way he suggested or that the Ministry of Health regulations must be scrapped. He was encouraged by the opinion of eminent Members of the House that any legal difficulty could be readily overcome. If, however, the regulations were scrapped, the fate of a highly successful and important ministerial and medical effort was sealed.

The sponsors of the Bill were: Dr. Vernon Davies, Sir Walter Greaves-Lord, Mr. E. C. Grenfell, Mr. Arthur Henderson, Mr. F. B. Merriman, Mr. Hopkin Morris, Sir Basil Peto, Mr. Goodman Roberts, Dr. Salter, Mr. Snowden, and Mr. Storry Deans.

Leave was granted to bring in the Bill, which was then read a first time.

Women and Lead Paint Poisoning.

Dr. LITTLE asked the Secretary of State for the Home Department if, since Clause 2 of the Lead Paint (Protection Against Poisoning) Act, 1926, came into force on Nov. 19th, he had made an order under proviso (*b*) authorising women to do special decorative work and other work not being of an industrial character; had he received any representation from women affected by the Act urging the making of an order under Clause 2, proviso (*b*); and would he accede to the request to receive a deputation from women affected by the Act.—Sir W. JOYNSON-HICKS replied: In pursuance of the provisions referred to, I made an order on the 14th instant which will have the effect of allowing women and young persons to be employed in the execution of wall or ceiling paintings or in any similar work of decorative design. Notice of the order, which will be published as a statutory rule and order, has been given in the press, and other steps have been taken to bring it to the knowledge of all concerned. Previous to the making of the order representations in regard to it were received from certain firms of women decorators. The order desired by these firms, however, was of a much wider character than the Act contemplates, and it was impossible for me to give effect to their suggestions. As regards the last part of the question, I have been asked to receive a deputation to protest against the general prohibition in the Act against the employment of women in painting buildings with lead paint, and to press for legislation for the removal of this prohibition. Seeing, however, that the prohibition was enacted by Parliament, after full discussion, so recently as 1926, and that leave was refused in July last by this House for the introduction of a Bill to remove the prohibition, I am not prepared to reopen this question, and I regret therefore I do not see my way ot accede to the request.

OBSERVATION WARDS AT BOW.—The Mayor of Poplar has opened a new maternity and child welfare centre in Wellington-road, Bow. Observation accommodation for ten children is provided in two five-cot wards, with nurses' duty room and milk laboratory adjoining, along with an isolation ward; there are also well-equipped dental and artificial sunlight clinics. Dr. F. W. Alexander, medical officer for Poplar, expressed his belief that the time is not far distant when maternity clinics will all be fitted with diathermy machines.

Medical News.

UNIVERSITY OF LONDON.—At a meeting of Senate on Nov. 16th, Dr. J. A. Braxton Hicks was appoin as from Sept. 1st, 1927, to the University Readership Pathology, tenable at the Westminster Hospital Med School. Dr. Braxton Hicks has worked since 1910 in Department of Pathology at the School, and since laboratories were enlarged under the John Burford Ca bequest he has been their director. He is also bacteriolo to the City of Westminster, and consulting patholo to the West End Hospital for Nervous Diseases. A of 250 guineas has been received from Messrs. J. Lyons Co., Ltd., towards the establishment of the proposed Cl of Dietetics.

A course of five lectures on the Technique of Bacte logical Research will be given by Dr. F. W. Twort in theatre of the Royal College of Surgeons, Lincoln's Inn-fie London, W.C., on Dec. 5th, 7th, 9th, 12th, and 14th 4 P.M. Admission is free, without ticket.

UNIVERSITY OF GLASGOW.—The two vac assessorships in the University Court of Glasgow have filled by the appointment of Dr. David Murray and John Freeland Fergus.

ROYAL INSTITUTE OF PUBLIC HEALTH.—It is unc understood that next year's meeting of the Institute i be held in Dublin, probably in the month of August. committee has been appointed to make the necess arrangements.

ROYAL MEDICAL BENEVOLENT FUND GUILD.—T Duchess of York will attend the May Fair Ball to be at the May Fair Hotel on Thursday, Dec. 1st, at 10 P in aid of the educational work of the Guild, for w £3000 is urgently required. Further particulars may had from the hon. secretary, Miss Tweedy, 100, Har street, London, W. 1.

COLLEGE OF PESTOLOGY.—Under the chairmans of the President, Sir William Bull, M.P., the College Pestology (Incorporated) held its annual dinner on Tues last at the Connaught Rooms. The Maxwell-Lefroy medal, for the best essay of the year on pest destruct was presented by Dr. E. Graham Little to Miss Fa O'Riordan, for her treatise on the extermination of fl an oil-painting of the late Prof. Maxwell-Lefroy, prese by Miss Blanche Harvey, was shown in the dining-ro In proposing the toast of The Ladies, Mr. A. Moore Hoga the chairman of the College, spoke of the part of wome practical pestology, and Miss E. Prentice replied. Am the guests were Sir Thomas Horder, Dr. Leonard Hill, Leslie Scott, K.C., Sir Alfred D. Fripp, and Dr. G. C Trotter.

FELLOWSHIP OF MEDICINE AND POST-GRADU MEDICAL ASSOCIATION.—On Monday, Nov. 28th, at 5 at the rooms of the Medical Society of London, 11, Chan street, Cavendish-square, W., Mr. Harold Chapple give a lecture entitled Practical Hints in Gynæcology Obstetrics. On Friday, Dec. 2nd, at 2 P.M., at the Nati Hospital for Diseases of the Heart, Westmorland-st Dr. John Parkinson will give a clinical demonstra The lecture and the demonstration are open to mem of the medical profession without fee. From Nov. to Dec. 3rd, at St. Mark's Hospital for Diseases of Rectum, a post-graduate course in Proctology will be during the afternoons and some mornings, the course sisting of lectures, operations, out-patient demonstra pathological demonstrations, and ward rounds. F Nov. 21st to Dec. 17th, at 5 P.M., the West End Hos for Nervous Diseases is holding a course in Neurol From Dec. 5th to 17th, at 2.30 P.M. daily, at the Inf Hospital, Vincent-square, a special course, with lect and demonstrations, will be held, and between the s dates at the same hour a course in Dermatology will place at the Hospital for Diseases of the Skin, Blackfr consisting of instruction in the out-patient department special demonstrations. From Jan. 9th to 21st, at Prince of Wales's General Hospital, there will be a co in medicine, surgery, and the specialties, and between same dates a course in Diseases of Children at the Childr Clinic. Courses in Cardiology at the National Hospita Diseases of the Heart, and in Psychological Medicine at Bethlem Royal Hospital will also be held in January. general course of work, which may be started at any and for any period, may be taken throughout the y Information, syllabuses, and tickets, and specimen c of the *Post-Graduate Medical Journal*, may be had from Secretary of the Fellowship at 1, Wimpole-street, Lon W. 1.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.—The arenga Prize for 1927 has been awarded to Dr. Emil ren, Cincinnati, Ohio, for an essay on Drunkenness.

NNS OF COURT.—Among those called to the Bar Nov. 17thwas Mr. A. Spong, M.R.C.P., F.R.C.S., who was ed at Gray's Inn.

MAUDSLEY HOSPITAL.—Lectures and practical ses of instruction for the Diploma in Psychological icine will be given at this hospital from Jan. 4th onwards.

OCIETY OF MEDICAL OFFICERS OF HEALTH.—The ual dinner was held on Nov. 17th at the Piccadilly Hotel, E. H. Snell presiding in the absence of the President, James Wheatley. In welcoming Mr. Neville Chamberlain, Snell said that he was the fifth Minister of Health within t years, and had held the office longer than any of his lecessors. It would be a good thing if the Minister had ter security of tenure. After long experience as a iicipal official, Dr. Snell found increasing difficulty in nguishing the political proclivities of the parties.

r. Chamberlain said that even in these days no one ocated the reduction of expenditure on the preventive ical services, on which the health and prosperity of people were founded. For efficiency it was important ave the heartiest coöperation between the Ministry and M.O.H.'s on the one hand, and between the M.O.H.'s nselves on the other. The health organisation in adminis- ve counties rather lent itself to friction, but the various als must work together in the closest possible relation. r efforts would never bear the best fruit unless they the coöperation of the public as well, and he was glad the society had established a Central Council of Health cation, with a new magazine, *Better Health*, which ed to be admirably adapted for its purpose. After ring to the value of annual reports, both to the Ministry to the public, Mr. Chamberlain concluded by urging M.O.H.'s should do their part in research by analysing masses of facts in their possession. He instanced ination, the period of infectivity of scarlet fever, and alue of disinfection, as subjects for investigation.

rd Eustace Percy (President of the Board of Education) ratulated the society on having arranged a visit of cal officers from abroad. Nothing, he said, could be valuable than to strengthen these international links. ointed out that the medical services of the Board of cation and the Ministry of Health were unified at the e and should be unified as far as possible at the peri- y. The system of medical inspection at three periods hool life was almost complete, and the main task of future was the preventive treatment of children's ses and defects. This work was making great progress, n the two years from 1924 to 1926 the number of minor nts dealt with had risen from 576,000 to 665,000. g the same period the number of visual defects treated isen from 160,000 to 190,000, and of ear, nose and t conditions from 34,000 to 68,000, whilst 852,000 l cases had been treated in 1926, compared with 00 in 1924. The public seemed to fear that a vast of officials was being created; the facts were as vs. The so-called army of nurses amounted to one very 1000 children in elementary schools, 40 per cent. em being district nurses, 30 per cent. engaged in public h work, and less than 20 per cent. employed as school s alone. There was one school medical officer to every children. Of these officers, 30 per cent. worked part- only, 47 per cent. were engaged in other branches of c health work, whilst only 20 per cent. devoted their time to the schools. There was only one dentist to 8000 children, and 50 per cent. of them were appointed part-time basis. These figures showed (1) that the was not extravagantly large in relation to the work done; (2) that the services of general practitioners being widely utilised; and (3) that public health and l work were often combined.

The Chairman, speaking of the rôle of the new Central cil of Health Education, said that many of the present educational societies could be swallowed up in an quake without harm to the community. It was clear nothing so needed reform as other people's habits. deal of the Council was to produce a journal free from s and fads. Dr. Snell ended an amusing speech by ing to the constant complaints of the Ministry that strict did not contain the proper quota of the blind, alt, and the mentally defective. Prof. Bostock Hill sed the health of the guests, and the Dean of West- er, Dr. Foxley Norris, who replied, spoke of the way ich the health services had taken over work previously by the Church. Prof. W. Silberschmidt, replying half of his foreign colleagues of the course of hygiene, ssed a high opinion of public health work in England. was a place for friendly rivalry between the nations, e family of medical officers should be international.

WE regret to announce the death of Dr. J. P. Purvis, treasurer of the West Kent Medico-Chirurgical Society.

STAFF OF PRINCESS LOUISE KENSINGTON HOSPITAL FOR CHILDREN.—The out-patient department of this hospital will open on Dec. 6th, and beds will be available for in-patients in the New Year. A formal opening ceremony is to be performed by the King and Queen next May if a further sum of £12,000 is raised before then to render this first portion of the hospital debt free. The following appointments to the consulting staff have been made: Consulting physician, Sir William Willcox; consulting surgeon, Sir Herbert Waterhouse; physicians, Dr. P. Montague Smith and Dr. Sydney A. Owen; surgeons, Mr. Neil Sinclair, Mr. R. M. Handfield-Jones, and Mr. Eric Lloyd; assistant physicians, Dr. Douglas Rice-Oxley, Dr. R. C. Lightwood, and Dr. Janet Aitken; assistant surgeon, Mr. Robert Paton; ear, throat and nose surgeon, Mr. G. Douglas Robertson; ophthalmic surgeon, Mr. A. E. Loosely; dermatologist, Mr. Lewes N. Gibbes; anæsthetists, Dr. Ernest F. Travers, Dr. Aileen Chester, and Dr. Audrey Phipps; medical officer in charge of electrical department, Dr. J. F. Carter Braine; radiologist, Dr. H. M. Worth; dental surgeon, Mr. L. Russell Marsh; pathologist, Dr. Robert Donaldson.

PROCEEDINGS UNDER THE LEAD PAINT ACT.—On Nov. 21st the first local case under the Lead Paint (Protection against Poisoning) Act, 1926, came before the Tunbridge Wells borough justices, when a firm of builders was summoned, as employers of persons engaged in painting, for not sending to the district inspector of factories the name and address of its office, contrary to the Act. Mr. C. B. Roos, H.M. Inspector of Factories, in conducting the prosecution, stated that, although not required by law to do so, the Home Office sent a letter on the subject to all employers, and also inserted notices in two trade papers. On Nov. 10th he visited the office of the defendant firm and inspected the time-sheets which showed that there were several men engaged on painting a house. A solicitor for the defence denied the receipt of a notice from the Home Office; and there was the further contention that the Act was obscure inasmuch as no time was provided for compliance with a particular section as was the case with other Acts of Parliament. The justices held that a technical offence had been committed, but as it was the first local case they decided that it should be dismissed on payment of costs. There was another summons against the same firm—for failing to keep for inspection by an inspector of factories at all reasonable times a register in prescribed form of persons employed in painting of buildings; but at the suggestion of the justices, in view of the Home Office object having been achieved in drawing attention to the requirements of the Act by way of the first summons, Mr. Roos withdrew this count. There was a plea of Not Guilty in each case.

IRISH MEDICAL SCHOOLS AND GRADUATES ASSOCIATION.—The autumn reunion of this Association was held at the Savoy Hotel on Nov. 17th, with Sir William Wheeler, the President, in the chair. There was a large assembly of members and guests, many ladies being present at what proved a very enjoyable function. After the loyal toasts had been drunk with musical honours, Dr. Lindsay Rea, in a happy speech, proposed "The Guests." Major-General Sir William Hickie responded and related many anecdotes about the deeds of Irish regiments during the war. He paid special tribute to the medical officers who served in the front line and with the field ambulances. Sir Bruce Bruce-Porter and Dr. William Hill also responded. Dr. Frederick Spicer proposed the toast of the President and Association. Sir William Wheeler, in reply, emphasised the importance of keeping and bringing Irish medical men together, and congratulated the responsible officers on the ever-increasing popularity of the Association. He referred to the admirable action of President Cosgrave's Government in establishing an Irish Medical Council which pleased everybody, in abolishing the union infirmaries, and in the setting up of machinery which would secure that appointments made to county hospitals should be no longer affected by local influence, but only by the real qualifications of a candidate for his job. There was an excellent musical programme, and the songs of Mr. Patrick Hughes and Miss Mabel Moore called for many encores. Miss Daci O'Niell acted as accompanist. One of the objects of the Association is to give opportunities for members to meet each other in pleasant circumstances, and the dinners, which are held in London twice a year, are well attended. The first takes place after the annual meeting on St. Patrick's Day, March 17th, whilst the second is held regularly on the third Thursday in November. The hon. secretary is Dr. F. R. Holmes Meyrick, 59, Kensington-court, London, W.8, to whom application may be made for membership.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MONDAY, Nov. 28th.—8 P.M., ODONTOLOGY. Mr. Bayford Underwood: Case of Pain and Swelling in Submaxillary Gland Caused by Pressure of Denture. Mr. Ivan S. Spain: The Uses of Nitrous Oxide and Oxygen in Dentistry.

THURSDAY, Dec. 1st.—8.15 P.M., TROPICAL DISEASES. Symposium on Technique by various speakers.

FRIDAY.—5 P.M., LARYNGOLOGY. (Cases at 4 P.M.). Discussion on Deep X Ray and Radium Therapy in Relation to the Mouth and Upper Respiratory Tract. Speakers: Dr. W. L. Watt and Dr. Finzi. Cases: Only cases bearing on the subject will be shown. ELECTRO-THERAPEUTICS: It is hoped that Members of the Section of Electro-Therapeutics will join this Discussion.—8.30 P.M., ANÆSTHETICS. Paper: Dr. T. P. Dunhill: Anæsthesia in Thyroid Surgery.

SATURDAY.—10 A.M., OTOLOGY. (Cases at 9.30 A.M.) Papers: Mr. Somerville Hastings and Mr. Gordon R. Scarff: Some Notes on Paracusis Willisii from the Ferens Institute of Otolaryngology. Dr. Dan McKenzie: Posterior (Mastoid) Drainage in Acute Suppuration of the Middle Ear. Cases: Dr. Russ Wood: Notes on a Case of Otitic Septicæmia. Dr. Leslie Powell: Case of Acute Otitis Media with very rapid Involvement of Lateral and both Cavernous Sinuses. Cases will also be shown by Sir James Dundas-Grant and others.

MEDICAL SOCIETY OF LONDON.

MONDAY, Nov. 28th.—8.30 P.M., Discussion on the Medical Society's Report on "The Late Results of Operation for Carcinoma of the Breast," introduced by Mr. T. P. Legg.

ROYAL SOCIETY OF ARTS, 1, John-street, Adelphi, W.C.

WEDNESDAY, Nov. 30th.—8 P.M., Prof. Henry E. Armstrong: Marcellin Berthelot and Synthetic Chemistry.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, Nov. 28th, to SATURDAY, Dec. 3rd.—NATIONAL HOSPITAL FOR DISEASES OF THE HEART, Westmoreland-street, W. Special Clinical Demonstration by Dr. John Parkinson on Friday at 2 P.M.—FELLOWSHIP OF MEDICINE LECTURE, Medical Society, 11, Chandos-street, W. Mr. Harold Chapple on Practical Hints in Gynæcology and Obstetrics, at 5 P.M., on Monday, Nov. 28th. The above are free. ST. MARK'S HOSPITAL, City-road, E.C. Post-graduate Course in Proctology, occupying every afternoon and some mornings with Operations, Lectures, Out-patient Demonstrations, Pathological Demonstrations, and Wards.—ROYAL WATERLOO HOSPITAL, Waterloo-road, S.E. Post-graduate Course in Medicine, Surgery, and Gynæcology. Afternoons and some mornings. Third week.—WEST END HOSPITAL FOR NERVOUS DISEASES, Welbeck-street, W. Post-graduate Course in Neurology. Every afternoon at 5 P.M. for four weeks. Further information from the Secretary, Mayfair 2236.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY, Nov. 28th.—2.30 P.M. to 5 P.M., Medical, Surgical, and Gynæcological Clinics. Operations.

TUESDAY.—2.30 P.M. to 5 P.M., Medical, Surgical, Throat, Nose, and Ear Clinics. Operations.

WEDNESDAY.—2.30 P.M. to 5 P.M., Medical, Skin, and Eye Clinics. Operations.

THURSDAY.—11.30 A.M., Dental Clinic. 2.30 P.M. to 5 P.M., Medical, Surgical, and Ear, Nose, and Throat Clinics. Operations.

FRIDAY.—10.30 A.M., Throat, Nose, and Ear Clinics. 2.30 P.M. to 5 P.M., Surgical, Medical, and Children's Diseases Clinics. Operations.

There will also be a special demonstration of Surgical Cases on Monday, Nov. 28th, at 2 P.M., and of Eye Cases on Wednesday, Nov. 30th, at 2 P.M., by Mr. Ralph Coyte and Mr. N. B. B. Fleming respectively.

WEST LONDON HOSPITAL POST-GRADUATE COLLEGE, Hammersmith-road, W.

MONDAY, Nov. 28th.—2 P.M., Mr. Donald Armour: Operations. 2 P.M., Dr. Trevor Davies: Gynæcological Out-patients. 2 P.M., Mr. Addison: Surgical Wards.

TUESDAY.—11 A.M., Mr. Endean: Venereal Diseases. 2 P.M., Mr. Addison: Operations. 4.30 P.M., Dr. Dowling: Preservation of a Youthful Skin (lecture).

WEDNESDAY.—10 A.M., Dr. Owen: Children's Department. 10 A.M., Dr. Burnford: Medical Wards. 4.30 P.M., Dr. Carter Braine: X Ray Therapeutics (lecture).

THURSDAY.—11 A.M., Resident Assistant Surgeon: W... Demonstrations. 2 P.M., Mr. Simmonds: Surgi... Out-patients. 3 P.M., Sir Henry Simson: Gynæ... logical Ward Visit.

FRIDAY.—11 A.M., Dr. Pritchard: Modern Methods ... Medicine. 2 P.M., Dr. Shaw: Medical Out-patien... 2 P.M., Mr. Vlasto: Throat, Nose, and Ear Departme...

SATURDAY.—9.30 A.M., Dr. Burnford: Bacterial Thera... Department. 10 A.M., Dr. Owen: Medical Diseases ... Children.

Daily, 10 A.M. to 5 P.M., Saturdays, 10 A.M. to 1 P.... In- and Out-patients, Operations, Special Departme...

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospi... 49, Leicester-square, W.C.

TUESDAY, Nov. 29th.—5 P.M., Dr. A. Whitfield: Tuber... losis Cutis (2).

THURSDAY, Dec. 1st.—5 P.M., Dr. Haldin-Davis: A... Rosacea.

ROYAL NORTHERN HOSPITAL, Holloway-road, N.

TUESDAY, Nov. 29th.—3.15 P.M., Mr. G. G. Penman: Sc... Common Eye Conditions of Childhood.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATI... St. James's Hospital, Ouseley-road, Balham.

THURSDAY, Dec. 1st.—4 P.M., Dr. W. J. O'Donov... Clinical Demonstration of Dermatological Cases.

HOSPITAL FOR SICK CHILDREN, Great Ormond-str... W.C.

THURSDAY, Dec. 1st.—4 P.M., Dr. A. M. H. Gray: Infa... Eczema.

PEOPLE'S LEAGUE OF HEALTH.

THURSDAY, Dec. 1st.—6 P.M. (at 11, Chandos-str... Cavendish-square, W.), Prof. H. R. Kenwood: Hygi...

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Rus... square, W.C.

WEDNESDAY, Nov. 30th.—4 P.M., Prof. Blair Bell: ... vention of Cancer.

JAMES MACKENZIE INSTITUTE FOR CLINIC... RESEARCH, St. Andrews.

TUESDAY, Nov. 29th.—4 P.M., Dr. Edmund Spriggs: E... Symptoms of Cancer of the Stomach. Discussion ... be opened by Dr. Bryson.

FRIDAY.—4 P.M., Case reading and discussion, in which ... medical practitioners are invited to take part.

MANCHESTER ROYAL INFIRMARY POST-GRADU... COURSES.

TUESDAY, Nov. 29th.—4.15 P.M., Dr. D. E. Core: ... turbances of Sleep.

FRIDAY.—4.15 P.M., Dr. W. M. Roberts: Gastric Ana... in Clinical Medicine and Research.

UNIVERSITY OF SHEFFIELD POST-GRADUATE CLIN...

FRIDAY, Dec. 2nd.—3.30 P.M., Mr. Graham Simp... Surgical Cases.

Appointments.

CORSI, HENRY, F.R.C.S. Eng., has been appointed Physici... in charge of the Department for Diseases of the Skin, Wille... General Hospital.

Vacancies.

For further information refer to the adevrtisement columns.

All Saints Hospital for Genito-Urinary Dis., Vauxhall Bridge-rd., S.W.—Res. Sen. H.S. and Non-Res. Jun. H.S. At ra... £200 and £150 respectively.

Barnsley, Beckett Hospital and Dispensary.—H.P. At rat... £140.

Brighton, New Sussex Hospital for Women and Children.—... Asst. S.

Cambridge, Papworth Village Settlement.—H.P. At rate of £... Also Res. M.O. £350.

Cancer Hospital, Fulham-road, S.W.—H.S. At rate of £10...

Cardiff Royal Infirmary.—Cas. Surg. O., H.S. to Aural D... H.S., and 2 Res. Anæsthetists. Each at rate of £50.

Cheadle Barnes Convalescent Hospital.—Res. M.O. £250.

Derbyshire Royal Infirmary, Derby.—Ophth. H.S. £150.

Dublin, Mercer's Hospital.—Hon. Asst. Surg.

Durham County Council Education Committee.—Asst. S... M.O. £600.

Eastbourne, Princess Alice Hospital.—Sen. and Jun. Res. H... At rate of £125 and £100 respectively.

Hospital for Sick Children, Great Ormond-street, W.C.—... Pathologist. £400. H.P. and H.S. At rate of £50. ... Med. Reg. £250.

Hull, Tuberculosis Sanatorium, Cottingham, E. Yorks.—Res. ... £485.

Hull and Goole Port Sanitary Authority.—Asst. M.O.H. £7...

swich, East Suffolk and Ipswich Hospital.—Res. M. and S.O. £350 if single; £500 if married. Also vacancy on Visiting Staff for X ray, &c.
eds, City of.—Asst. M.O. for Maternity and Child Welfare. £600.
rwick, Gilbert Bain Memorial Hospital, &c.—Surg. and Consultant. £700.
erpool County Borough Local Education Authority.—Jun. Asst. Sch. M.O. £600.
erpool School of Tropical Medicine.—Lectureship in Tropical Sanitation and Hygiene. £500.
ndon Jewish Hospital, Stepney Green, E.—Hon. M.O. for Dept. for Dis. of Skin.
ndon Lock Hospital, 91, Dean-street, W.—H.S. At rate of £200.
nchester, Northern Hospital for Women and Children.—Hon. Asst. Surg. Also Sen. H.S. and Jun. H.S. £130 and £100 respectively.
nchester Royal Children's Hospital.—Radiologist. £250.
lton, Suffolk, St. Audry's Hospital for Mental Diseases.—Jun. Asst. M.O. £300.
trop litan Hospital, Kingsland-road, E.—Phys. to Dept. for Diseases of Skin.
rth Middlesex Hospital, Edmonton, N.—Visiting Throat S. 3 guineas per session.
ham Royal Infirmary.—Two H.S.'s. Each at rate of £175.
th Infirmary.—Sen. H.S. £250.
mouth County Borough.—Asst. M.O.H. £750.
nce of Wales's General Hospital, N.—Hon. Clin. Assts.
en Charlotte's Maternity Hospital, Marylebone-road, N.W.—Asst. Res. M.O. At rate of £80.
en Mary's Hospital for the East End, Stratford, E.—Res. M.O., H.P., H.S.'s., &c.
ding, Royal Berkshire Hospital.—H.P. At rate of £150.
hmond, Surrey, Royal Hospital.—Hon. Pathologist
Marylebone Hospital, Ladbroke-grove, W.—Third Asst. M.O. £300.
ford Union Infirmary, Hope, Pendleton, Salford.—Two Asst. Res. M.O.'s. Each £275.
nghai Municipal Council, Public Health Dept.—Asst. Radiologist. £1050.
ffield Royal Infirmary.—Two H.S.'s., Asst. Cas. O., and Jun. Aural and Ophth. H.S. Each at rate of £80.
ra Leone, School Laboratory, Freetown.—Two Research Assts. Each £600.
fordshire General Infirmary, Stafford.—H.S. At rate of £200.
nsea Hospital.—H.S. to Ophth. and Aural Depts. £150–£200.
morden Borough.—M.O.H. and S.M.O. £800.
llasey, Victoria Central Hospital.—Sen. and Jun. H.S.'s. £150 and £100 respectively.
t London Hospital, Hammersmith, W.—H.P., H.S., Res. Asst. Cas. O., and Aural and Ophth. H.S. Each at rate of £100. Also Radiographer. £250.
dsor, King Edward VII. Hospital.—Jun. H.S. At rate of £100.

Chief Inspector of Factories announces the following vacant appointment for Certifying Factory Surgeons: Maidstone (Kent).

Births, Marriages, and Deaths.

BIRTHS.

LE.—On Nov. 10th, at a nursing home, Dublin, the wife of Cecil D. Coyle, M.B., of a daughter.
LS.—On Nov. 18th, at West Bar, Banbury, the wife of Dr. C. J. L. Wells, of a daughter.

MARRIAGES.

NK—SHARP.—On Nov. 14th, at St. Stephen's, Hampstead, N.W., Herbert George Cronk, M.B., to Mary Sharp, late of Sarawak.
BURY—KAINES.—On Nov. 19th, 1927, at the Church of St. Mary-the-Virgin, Primrose Hill, N.W., by the Rev. Father Edward Wynn, O.G.S., Dean of Pembroke College, Cambridge, Lysander Montague Maybury, M.A., M.B., B.Chir. Camb., D.T.M. & H. Eng., eldest son of Dr. and Mrs. Lysander Maybury, of Southsea, to Florence Edna Kaines, daughter of Mr. and Mrs. H. Johnson Kaines, of Guernsey. Nuptial High Mass was sung by the Rev. A. S. Duncan-Jones, M.A., Vicar of St. Mary's, assisted by the Rev. Colin Dunlop, M.A., and the Rev. Leonard Williams, B.A.
CHESON—WALKER.—On Nov. 16th, at St. Mary Abbot's, Kensington, Victor S. Mitcheson, B.A. Camb., M.R.C.S., L.R.C.P., to Mildred Mary, only daughter of J. E. and Mrs. Walker, of Keswick.

DEATHS.

ELL.—On Nov. 18th, at 23, Nevern-square, S.W., George Cowell, F.R.C.S., Consulting Surgeon, Westminster Hospital, aged 92.
VIS.—On Nov. 18th, at "Thornhill," 16, The Grove, Greenwich, John Prior Purvis, M.R.C.S., L.S.A., in his 87th year.
TELOCKE.—On Nov. 19th, at Oxford, Richard Henry Anglin Whitelocke, M.D., F.R.C.S., in his 67th year.

—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Comments, and Abstracts.

ENFORCEMENT OF VACCINATION LAWS IN COUNTY WEXFORD.

DEBATE IN THE DAIL EIREANN.

ON the motion for adjournment of the House on Nov. 24th Mr. M. J. JORDAN raised the question of the enforcement of the vaccination laws in County Wexford, arguing the case from the ratepayers' point of view. These laws had, he said, been in abeyance in the county for the last 20 years. There were now at least 17,000 defaulters, and the expense of serving notices and of doctors' fees would amount to £2550, apart from the cost at £5 per case of prosecuting, say, 5 per cent. of those who refused to comply.

General MULCAHY (Minister for Local Government and Public Health) asked the Deputy to develop the point as to who was going to bear the expense of an outbreak of small-pox if such should occur.

Mr. JORDAN: The fact remains that for the past 20 years the vaccination laws in Wexford have been in abeyance and no case of small-pox has broken out.

Sir JAMES CRAIG read a letter stating that £7,000,000 would be the price the British nation would have to pay during the year 1928–29 for dealing with small-pox if the present rate of increase were continued. Vaccination, he said, was in the nature of an insurance.

Dr. RYAN remarked that the big grievance in Wexford was that there was no conscientious objection clause, as there was in England. The people of Wexford were not prepared to see their children suffer. There was nothing political or what you might call antigovernment in the thing.

General MULCAHY said that he could not hold out any hope that he would not do everything possible to enforce the vaccination laws. The Free State was in the happy position since perhaps 1908 of having had only 11 cases of small-pox, and owing to the vigilance of the public health authorities these cases had been dealt with without the infection spreading. But during last year Britain had had 90 per cent. of the small-pox cases that existed in Europe and the danger of an extensive and dangerous outbreak spreading thence was serious. They had no assurance that the mild form of small-pox existing in any particular area would not develop into the virulent form, and it had not been suggested that the medical basis upon which the vaccination laws were framed was unsound. It had been argued that the administration of the laws in Wexford would cost a considerable amount, but the total legal expenses in New Ross since the urban district council had taken over from the guardians the administration of vaccination had only amounted, including 38 cases of default, to £21 14*s.* 7*d.* On the other hand, small-pox in Monmouthshire had already cost the ratepayers £10,000 in capital expenditure and equipment, while the maintenance of 200 beds for six months would mean another £13,000. There was no reason, if the danger were clearly shown, why the Wexford people should not be as sensible as any others. He could assure them that infantile vaccination was going to protect the children of the country up to the age of 12 years practically completely against the danger of small-pox. The Government had a duty to the people to prevent small-pox being brought over from England and developing in the country, and they were prepared to carry out that duty. "If there is a feeling," he said, "that there is not a sound medical basis to our present vaccination laws, we ought to have the position stated from the medical point of view. Do not let us act blindly in the dark because someone said antivaccination was always connected with the national movement in Ireland."

SICKNESS AND LIFE ASSURANCE FOR MEDICAL MEN.

AT the annual meeting of the Medical Sickness, Annuity, and Life Assurance Society, Ltd., on Nov. 14th, the chairman, Dr. F. J. Allan, was able to report that in spite of industrial disputes and influenza epidemics, the Society was in an improved position. That the medical and dental professions appreciated its soundness was evident, he said, from the fact that the premium income on the sickness fund was larger than the premium income of any other company doing permanent sickness insurance in this country. The Society endeavoured to treat its members fairly and he was pleased to say that it had never gone to law or even had to refer a claim to lawyers. The feature of last year's business had been that although the amounts insured were greater the actual new premiums were smaller because a large number of younger men had come in soon

after qualification and were therefore entitled to rebates on their first and second years' premiums.

Although medical men are constantly in touch with illness in persons of all ages, there are many who, especially when they are young, do not entertain the possibility that they themselves may become patients. That this view is short-sighted is shown by the fact that 24 per cent. of the Society's members come on the funds each year, whilst there are about 50 members who have been incapacitated for a long time, one of them having drawn benefit for 24 years. It is stated that in each year 19 out of every 1000 members undergo operation.

The Society's sickness fund at present amounts to £333,712, whilst only £245,071 is required to meet its liabilities. A new method has now been adopted for the distribution of the surplus, based on the complaint that a member may pay for sickness benefit for many years but never gets any cash return for his money unless he is ill. In the past the surplus has been distributed by offering a rebate to members on their annual premiums, but this has not proved wholly satisfactory, and in future the bonuses declared will be allowed to accumulate for the benefit of the member, and will be given him in a lump sum when he reaches the attainment age. Assuming that the Society's position is maintained, a man aged 30, who takes out a sickness policy for 5 guineas a week should receive a cheque for over £130 on closing the policy at the age of 65, besides any sums he may have drawn out in benefit in the interval. The advantages of the Society's life assurance policies may be shown by another example. A man aged 30, who effects a policy for £1000 payable at the age of 65, or at his previous death, will be asked to pay a premium of £25 6*s*. 8*d*. a year for 35 years—i.e., a total of £886. With income-tax rebate on the present scale the actual cost will be £798, but assuming that bonuses continue to be declared by the Society at the same rate he will receive at 65 the sum of £1350, which is equivalent to a return of all he has paid plus £552.

Of special interest to the young practitioner are the Society's schemes for assistance in the purchases of a house or a practice. The Society is in a strong position and is able to offer good terms in many directions because it caters only for the medical and dental professions (who are good clients from the point of view of honesty and health), and because its overhead charges are low.

ARTIFICIAL DEFORMATION OF THE SKULL.

To the Editor of THE LANCET.

SIR,—In my recent note on artificial cranial deformation (THE LANCET, Nov. 5th, p. 1001) I referred to an artificially deformed skull published in 1918 by Dr. G. Sobhy, but my attention has since been called to the fact that the gravest doubt must attach to the authenticity of that author's statements. He stated definitely that the skull was in possession of Dr. L. Gatineau, and that it was found in a tomb at Tell el Amarna (a statement which, if true, would definitely associate the skull with the reign of Akhenaten), but I have since ascertained that Dr. Gatineau himself afterwards published the identical skull as having been found by himself during excavations in a Coptic burial-ground of the Christian period at Medall, near Fachre, in Upper Egypt (La Semaine Dentaire, Jan. 22nd, 1922). I am endeavouring to ascertain the truth of the matter, but in the meantime I wish to withdraw any conclusions that may depend upon the authenticity of this skull. My original suggestion, however, that the heads of Akhenaten's children may have been deliberately deformed in imitation of their father's is not affected by eliminating from the discussion the skull mentioned above, for my note was intended to be no more than a tentative suggestion.

I am, Sir, yours faithfully,

WARREN R. DAWSON.

Palace Mansions, W., Nov. 19th, 1927.

PNEUMOCOCCI IN MICE.

IN a recent paper Dr. F. A. Coventry [1] has published the results of his investigation of the course of Type I. pneumococcal infections in mice by plating samples of blood at intervals. He considers that this method gives a more accurate record than that based only on survival time. In series of mice to which gradually increasing doses of whole Type I. antiserum and a constant dose of pneumococcal culture were injected simultaneously, plate cultures showed some bactericidal action on the organisms even when the survival time was not lengthened. As the dose of serum was increased alternate recurring zones of protection and partial protection were shown, but there were no zones of complete inaction as had been previously suggested. For example, with a constant dose of culture, 0·1 to 0·4 c.c. of serum (per 20 g. body-weight of mouse) completely protected the animals. Somewhat higher doses did not. Still higher doses—1·4 to 1·8 c.cm.—gave complete protection and doses above that showed protection in some cases but not in others. Similar results were found to follow Felton's concentrated antibodies instead of serum and also gave fewer cases of partial protection than did whole serum. Experiments on the curative action of concentrated antibodies in which the injection were made four hours after the dose of pneumococci showed that, although there was some initial inhibitory action in all cases, this was small with large doses (10 million M.L.D.) of pneumococci were used. When the dose was reduced, however, to 1 million M.L.D. complete protection was afforded by antiserum both in protective and curative experiments. No final explanation of these phenomena can at present be given, but the results are interesting in view of the fact that Type I. is the chief pneumococcus for which an antiserum of even moderate efficiency in man has been prepared. To have any effect in lobar pneumonia due to this type the serum must be given as early as possible, in large doses and preferably by the intravenous route. Until a means has been found of preparing this serum in a more concentrated form it is unlikely to become a common therapeutic agent.

[1] The Protective and Curative Action of Large Doses of Pneumococcus Antiserum in Mice. By F. A. Coventry. American Journal of Hygiene, Sept. 1927, vol. vii., No. 5, pp. 515–541.

NEEDLES FOR RECORD SYRINGES.

THE new "Summit" needle possesses distinct advantages. The old difficulty of having to thread the wire through a point has been overcome, and the wire can be passed easily from the cone end by means of a converging bore. The needle is so constructed that it cannot become dislodged from the cone, the junction being fluid-proof. It is easily picked up and held as the cone has concave surfaces. The needles are made in all the standard sizes and sold in packets of a dozen, fixed to a metal plate to prevent the point from being rubbed. The needles may be had from all surgical instrument houses. Details are obtainable from Messrs. Van Bros., Ltd., 3, Eden-street, London, N.W. 1.

A DISCLAIMER.

To the Editor of THE LANCET.

SIR,—Recently my attention was drawn to an advertisement issued by a firm of manufacturing chemists, in which a passage from a paper published by me in the medical press was introduced in such a way as to leave the impression that one of their preparations was recommended by me. I had no knowledge of the preparation advertised, and the use of my name was entirely unauthorised. Following a protest made by me the quotation has been withdrawn from the advertisement, but the company decline to offer any apology for their action.

I am, Sir, yours faithfully,

DOUGLAS GUTHRIE.

Rothesay-place, Edinburgh. Nov. 21st, 1927.

*** Our correspondent is justly incensed at the employment of his name in any way that might give colour to the impression that he had behaved unethically.—ED. L.

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A Retrospect OF DYSPNŒA.*

Y J. CRIGHTON BRAMWELL, M.A. CAMB., M.D. MANCH., M.R.C.P. LOND.,

TANT PHYSICIAN TO THE MANCHESTER ROYAL INFIRMARY, ND HONORARY ASSISTANT LECTURER IN EXPERIMENTAL PHYSIOLOGY, MANCHESTER UNIVERSITY.

HEN I selected dyspnœa as the subject for this re I was not aware that the "Causes and Treat- of Dyspnœa" had been the title of the first post- uate lecture ever given in the Manchester Royal mary. That lecture was delivered in the year by the late Dr. Daniel John Leech, who was our professor of therapeutics and senior ician to this hospital. My friend and colleague, Bosdin Leech, has kindly lent me the manuscript at lecture in order that I might compare the nt position of our knowledge on this subject that of 40 years ago.

e term dyspnœa implies not merely an increase e respiratory function, but a consciousness of increase on the part of the patient; or, as Dr. n expressed it, "dyspnœa is present when the *a de respirer* becomes apparent." The depth frequency of respiration in each one of us is nually varying, just as the force and rate of the -beat vary, in response to the requirements of oment. For the most part we are not conscious ese variations, and it is not until the lungs and begin to experience difficulty in meeting their ties that we suffer from dyspnœa or from ation.

with other subjective symptoms, a second plays a part in the production of dyspnœa—ty, the susceptibility of the perceptive nervous anism. At the end of the year's work, when we n down and in need of a holiday, most of us are o become unduly irritable and conscious of annoyances which at other times would pass iced. There is a class of unfortunate individuals, we speak of as hypersensitive, whose nervous n is always in this state. For them the threshold sciousness at which hyperpnœa becomes dyspnœa a lower level than in normal people.

healthy young subjects, during light and moderate ion, pulmonary ventilation increases in propor- o metabolism (Fig. 1), but when exercise is very ous, ventilation tends to increase more rapidly. n the region of this transition that the threshold pnœa is situated. The lowering of the threshold ersensitive subjects must be distinguished from rly attainment of the threshold under patho- conditions. In patients with congestive heart , for example, the pulmonary ventilation is ive, even at rest, and since on exertion it ses more rapidly than in healthy subjects, the old of dyspnœa is reached abnormally quickly.

CHEMICAL REGULATION OF BREATHING.

depth and frequency of respiration is controlled entre in the medulla, and the normal stimulus excites the respiratory centre is an increase acidity, or, to use the modern terminology, a n its hydrogen-ion concentration, The body raordinarily sensitive to minute changes of gen-ion concentration; in fact, only a very range of variation is compatible with life. Two , the kidneys and the lungs, are principally ned with maintaining the reaction of the blood the prescribed limits. The kidney is, so to the coarse adjustment which eliminates from stem in bulk the excess of acid or alkali as the ay be, while the lung is the fine adjustment, by varying the depth and frequency of respiration, can regulate the output of carbon dioxide in such a way as to maintain to a nicety the normal hydrogen-ion concentration. On account of its action on the respiratory centre, carbon dioxide is used therapeutically in carbon monoxide poisoning, and Yandell Henderson[4] has pointed out its value as a respiratory stimulant in anæsthetic practice.

When the kidney is diseased and fails to excrete the acids formed in the body, the readjustment of the acid base balance depends on an increase of lung ventilation. Consequently it is not surprising that dyspnœa is a prominent symptom in certain forms of nephritis. Similarly, in the condition known as ketosis, which is met with most commonly as a complication of diabetes and in association with starvation, abnormal acid substances are produced in the body from the incomplete combustion of fats. By increasing the hydrogen-ion concentration of the blood these ketone bodies provoke dyspnœa.

FIG. 1.

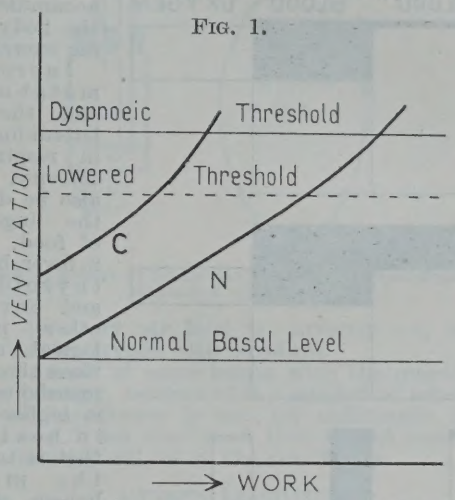


Diagram to illustrate increase of respiratory activity with work in normal (N) and cardiac (C) subjects, and the lowering of the threshold for dyspnœa when the perceptive nervous mechanism is hypersensitive.

It is interesting to note that 40 years ago the dyspnœa of nephritis and diabetes was attributed to an increased sensitivity of the respiratory centre. In fact, it was not until it was shown that carbon dioxide stimulated the respiratory centre by virtue of its acid properties that these two conditions were brought into line with the more familiar types of dyspnœa.

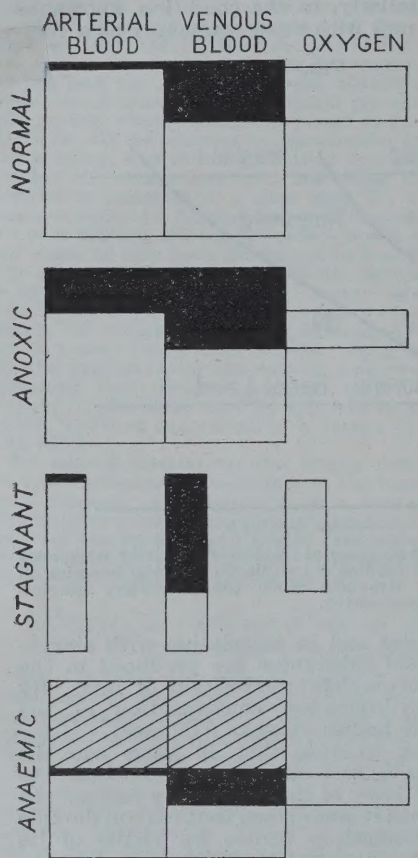
The essential factor, then, in the regulation of breathing is the hydrogen-ion concentration of the blood. The slightest bias towards the acid side stimulates the respiratory centre to increased activity and, if sufficient, will produce dyspnœa, while any change in the alkaline direction leads to a diminution of lung ventilation. There is, however, an additional factor to be considered—namely, the oxygen content of the blood. Oxygen-want renders the respiratory centre unduly sensitive to the chemical stimulus by which it is normally excited—namely, the hydrogen-ion concentration of the blood circulating through it. In people living at high altitudes, for example, the respiratory centre will not tolerate such a high tension of carbon dioxide in the alveolar air as it does at sea-level, and this is one reason why in them dyspnœa is more easily provoked.

Under normal atmospheric conditions, healthy young people, in good physical training, rarely suffer from dyspnœa, except during and immediately after violent exertion. We now know[5] that the actual process of muscular contraction is entirely anaerobic and depends on the conversion of glycogen into lactic acid with the liberation of energy. This is followed by what is called the "recovery phase," during which the lactic acid is disposed of, partly by oxidation to carbon dioxide and partly by reconversion into glycogen. During exercise the contraction and recovery processes are taking place concurrently;

* t-graduate lecture delivered at the Manchester Royal ry on Sept. 27th, 1927.

and so long as the removal of lactic acid keeps pace with its production, an equilibrium is established and exercise can proceed. As soon, however, as the oxygen supply becomes inadequate to provide for its oxidative removal the lactic acid begins to accumulate in the tissues, and, as A. V. Hill and his co-workers[5] have expressed it, the body "goes into debt" for oxygen. The panting which follows the cessation of exercise in human beings is necessary to pay off this debt, by supplying sufficient oxygen to provide for the removal of the excess of lactic acid which has accumulated in the body during exercise.

FIG. 2.



Types of anoxæmia. Ordinates represent percentage of hæmoglobin, white = oxyhæmoglobin, black = reduced hæmoglobin. Abscissæ represent blood flow. Hence white and black rectangles represent minute volume of oxy- and reduced hæmoglobin respectively in arterial and venous blood.

Increased metabolism, and the collateral increase in respiratory activity, may also be due to the ingestion of food, while in fever, hyperthyroidism, and certain other pathological conditions the basal metabolic rate is higher than in health—that is to say, the metabolism of the body is increased even at rest and while fasting. Consequently, under all these conditions, when physical exertion is superadded, the threshold of dyspnœa is reached more quickly.

Anoxæmia.

The amount of oxygen available for the tissues is determined principally by two factors: (1) the quantity of blood flowing through the tissues per minute (i.e., the circulation-rate), and (2) the oxygen content of that blood. To maintain an adequate circulation-rate is the business of the heart, while the oxygen content of the arterial blood depends on (1) the oxygen tension in the alveolar air, (2) the ability of the lung to allow the oxygen to pass into the blood, and (3) the hæmoglobin content of the blood. Barcroft has accordingly classified the various types of anoxæmia into three groups.

1. *Anoxic*, in which the pulmonary mechanism is primarily at fault and the arterial blood is not fully oxygenated. This may be due to a low tension of oxygen in the alveolar air, such as occurs at high altitudes, to some gross obstruction in the respiratory passages, or to an actual lesion of the lung itself, as in pneumonia or irritant gas poisoning.

2. *Stagnant*, in which the arterial blood is fully oxygenated, but the circulation-rate is too slow to provide an adequate blood-supply to the tissues. Heart failure is responsible for these cases.

3. *Anæmic*, in which the hæmoglobin content of the blood is reduced to such an extent that, even when the circulation-rate is normal and when the blood, such as it is, is fully oxygenated in the lungs, the quantity of oxygen which it is capable of carrying is insufficient for the requirements of the body.

I have attempted to illustrate these three types in a purely diagrammatic fashion (Fig. 2) by representing the total quantity of oxy- and reduced hæmoglobin in the arterial and venous blood respectively. The rectangles on the right of the diagram illustrate the difference between the arterial and venous blood—i.e., the quantity of oxygen abstracted by the tissues.

OXYGEN THERAPY.

My reason for referring to the different types of anoxæmia is to point out that it is only in anoxæmia that the arterial blood is not fully saturated with oxygen in passing through the lungs, and consequently it is only in those cases of dyspnœa which fall into this group that we are likely to obtain real benefit from oxygen therapy. I do not wish to suggest that, in cases of dyspnœa due to either of the other two types of anoxæmia, oxygen therapy is entirely useless, for by increasing greatly the oxygen tension in the alveolar air we can increase the amount of oxygen carried in solution in the plasma, though not the amount which is in chemical combination with hæmoglobin.

There are two conditions in which defective saturation of the hæmoglobin in the arterial blood will be relieved by oxygen therapy. In certain congenital heart lesions part of the blood is shunted directly from the right to the left heart without passing through the lungs, while in pneumonia that part of the blood which passes through the capillaries of the hepatic lung reaches the left auricle in an unoxygenated state.

It is important to remember, however, that in particular case there may be more than one factor involved. Profound anæmia, for instance, is frequently accompanied by fatty degeneration of the heart; while in congestive heart failure the reduced cardiac output is often complicated by œdema of the lungs; and in so far as the dyspnœa is due to impeded aeration of the blood from this cause, relief may be expected from oxygen therapy. Even in the early stages of heart disease there is a pulmonary factor involved in the production of dyspnœa, for, as Peabody has shown, the vital capacity (i.e., the maximum ventilation per breath) in these patients is reduced owing to impairment of elasticity of the lungs resulting from pulmonary congestion. Still another factor which contributes to the production of dyspnœa in cardiac patients is their increased basal metabolism, and I am inclined to think that, in some cases at any rate, there may also be an element of bronchial spasm, for I have sometimes seen benefit obtained from hypodermic injections of adrenalin, which strongly suggests an analogy to true spasmodic asthma. In conditions such as pneumonia, cyanosis is generally regarded as the principal clinical indication for the therapeutic use of oxygen. It is, however, important to remember, as Lundsgaard and Van Slyke[7] have pointed out, that general cyanosis does not appear until the hæmoglobin of the arterial blood is less than 85 per cent. saturated with oxygen. Since the normal saturation of the arterial blood is 96 per cent., and the threshold of cyanosis is about 85 per cent., a degree of anoxæmia probably sufficient to damage, at any rate, the more sensitive tissues such as those of the central nervous system, is already present before cyanosis appears. The aim of oxygen therapy should therefore be to prevent, and not merely to abolish, cyanosis.

Dr. Daniel Leech, in his lecture on the treatment of dyspnœa delivered in 1890, did not even refer to oxygen therapy. I have no doubt that the reason for this omission is that he did not consider the subject of sufficient practical importance to be worth mentioning. The pharmacologists at that time had not realised its possibilities, whilst the clinicians were naturally dissatisfied with the results obtained by the methods of administration then in vogue. It was not until 1915, when the treatment of soldiers suffering from chlorine gas poisoning became a problem of the utmost urgency, that a notable advance was

he technique of oxygen administration by J. S. lane's[3] introduction of the closed mask method. aim of oxygen therapy is to increase the partial sure of oxygen in the alveolar air. Judged by the only true criterion, the method of delivering gen from a funnel suspended at a distance of some es from the patient's face, is absolutely useless. ful measurements[2 6] show that the old open iod is incapable of producing any appreciable in the oxygen tension in the alveolar air, unless funnel be actually in contact with the face, and even so the results compare unfavourably with e obtained by means of a nasal catheter or a d mask. Even if the funnel had been capable elivering the oxygen to the lungs, the rate at h it was given by the open method rarely exceeded e per minute, whereas about eight times this rate w is usually necessary. As Davies and Gilchrist[2] pointed out, any apparent benefit which accrued such a parsimonious dose can only be attributed e psychotherapeutic effect.

om the point of view of the patient's comfort, the method of raising the alveolar oxygen tension place his bed in a closed chamber in which xygen content of the air breathed can be raised ie required concentration. The expense, how- of the apparatus renders this method extremely ed in its application. I do not therefore propose scuss it further, beyond saying that a modifica- of this method—namely, the "oxygen tent"— ed at the Mayo Clinic and elsewhere, brings it n the scope, at any rate, of hospital practice: a miniature oxygen chamber, the "oxygen has been designed by Raper[1] and used with ss in the treatment of marasmic infants.

ere remain the various types of oxygen mask he nasal catheter, both of which fufil the funda- al requirement of raising the alveolar oxygen on. The nasal catheter method is perfectly actory in many cases, but when it is necessary tain a high concentration of oxygen in the lar air, the rapid rate of flow entails considerable nfort to the patient. The drawbacks of the are obvious. A dyspnœic patient will not the idea of having anything put over his mouth ose which may still further hinder his embar- breathing. In this connexion there is a prac- point worth noting. When the mask is first d the patient is apt to take a very deep breath. encounters any undue resistance, or if with this reath he merely takes in air instead of the n-enriched mixture, his discomfort will be sed and he will probably refuse to give the a further trial. To overcome this difficulty, s and Gilchrist have introduced a modification ldane's original apparatus, attaching a reserve about 5 litres capacity to the mask, and filling h oxygen before the mask is applied. This is nt to satisfy the patient's requirements; his gasp will bring relief instead of producing onal discomfort, and he will be encouraged ceed. In Davies and Gilchrist's apparatus v-meter attached to the cylinder serves to te the volume of pure oxygen in litres inute which the patient is receiving, while ldditional adjustable air inlet in the mask s the operator to dilute the oxygen with the ed quantity of atmospheric air. The general ure with Davies and Gilchrist's modification ldane's instrument is first to set the reducing on the oxygen cylinder so that it delivers the ed quantity of oxygen per minute to the reserve nd then to vary the aperture of the accessory let in the mask until the volume of oxygen into the mask from the reserve bag during tion is approximately equal to that flowing uously from the cylinder into the bag during hole respiratory cycle.

e in many pathological conditions oxygen istration must be continuous over considerable s of time, the question of cost becomes impor- and economy has been considered in designing the more modern types of apparatus. It is obvious that it is only during the inspiratory phase of respiration that oxygen can serve any useful purpose, and that at least half the oxygen will be wasted if the supply to the mask be continuous. In Davies and Gilchrist's instrument (Fig. 3) there is a water valve which serves a threefold purpose. It automatically cuts off the oxygen-supply during expiration, it serves as a tell-tale to indicate whether the aperture

FIG. 3.

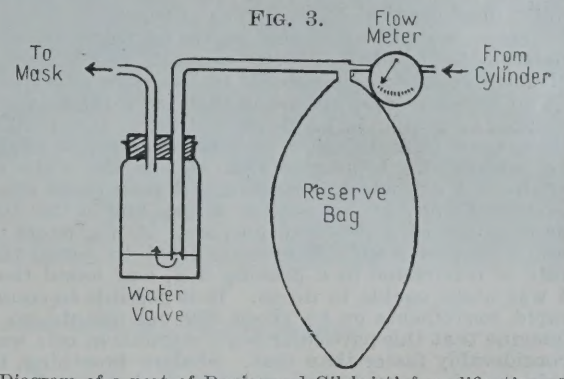


Diagram of a part of Davies and Gilchrist's[2] modification of Haldane's apparatus.

of the accessory air inlet is correctly set, and it saturates the oxygen with moisture.

I have dealt at some length with the question of oxygen therapy, because it is a subject of which the practical importance is not yet sufficiently appreciated, and I am convinced that it will come into much more general use in the near future.

OXYGEN LIABILITY.

Disease in its various mainfestations continually brings us face to face with the economic problem of supply and demand. When the demand of the body for any particular commodity exceeds the supply, symptoms of distress supervene. The relief of those symptoms depends on the restoration of the normal balance, and that may be brought about in one of two ways, either by increasing the assets of the body, or by reducing its liabilities. In dyspnœa we increase the assets by the administration of oxygen. Let us now see how we can reduce the liabilities.

Except in those conditions, such as diabetes and nephritis, in which dyspnœa is directly attributable to an acidosis, and the purely functional cases of nervous origin to which I shall refer later, pulmonary ventilation varies with metabolic activity. By reducing metabolism, therefore, we can diminish the liabilities. Consider, for example, the beneficial effect of rest in cardiac dyspnœa. An attempt to make a badly damaged heart increase its output is unlikely to be successful, but by reducing the demand for oxygen until it no longer exceeds the supply, the normal balance may be restored. Indirectly, by resting the heart muscle, we enable it to recuperate, and so not only diminish the patient's liabilities but also increase his assets. In pneumonia the beneficial effect of opium derivatives in relieving dyspnœa is in part attributable to diminished metabolism, through the abolition of restlessness; morphia is also a most useful drug in cardiac dyspnœa. In urgent cases of severe heart failure with auricular fibrillation I have often obtained most dramatic results by giving morphia hypodermically, in conjunction with massive doses of digitalis; and I am convinced that, by ensuring a period of much-needed sleep, the morphia played an important part in improving the condition of these patients.

The reputation of opium rests primarily on its power to relieve pain. The pleural pain so commonly associated with pneumonia is responsible for limiting the movements of the thorax and producing shallow breathing, and, as the depth of respiration diminishes, its frequency has to increase, even to a greater extent than is at first sight apparent. The reason for this

is as follows. A considerable portion of the air which enters the chest with each respiration remains in the "dead space" formed by the trachea and bronchi, and never reaches the alveoli of the lung. The tidal air (i.e., the amount of air which passes to and fro through the larynx with each breath) during quiet respiration amounts to about 500 c.cm. Of this some 150 c.cm. are required to fill the dead space. Supposing then, for example, that in shallow breathing the tidal air only amounts to 250 c.cm., 150 c.cm. still remain in the dead space and only 100 c.cm. reach the alveoli. In other words, when the depth of respiration is reduced to one-half of the normal, the effective alveolar ventilation is reduced to less than one-third. In an extreme case, supposing that the tidal air were reduced to a quarter of its normal value (125 c.cm.), then, apart from diffusion, only the dead space would be ventilated. I imagine that this is the state of affairs in a dog which is panting. A man pants after exercise to pay off his oxygen debt; but in the dog panting serves a different purpose. A dog pants in order to cool itself. I recently tried to count the rate of respiration in a panting dog, and found that I was quite unable to do so. It is possible to count rapid movements up to about 300 per minute, so I imagine that this particular dog's respiration-rate was considerably faster than that. Shallow breathing, in this case, is a necessary protective mechanism, for, if the dog were to take 400 full breaths per minute, it would in a few seconds reduce the tension of carbon dioxide in the alveolar air to such an extent that the respiratory centre would produce a complete inhibition of respiration—the condition which we speak of as acapnia. Similarly, the functional dyspnœa of nervous origin is so shallow that it fails to produce over-ventilation of the lung alveoli. In this connexion I might point out that shallow breathing is not only a cause but also one of the symptoms of anoxæmia. Hence a vicious circle is established which tends to aggravate the condition. Now, by relieving the pleural pain of pneumonia with morphia we increase the depth of respiration and improve the alveolar ventilation, and so help to relieve the dyspnœa.

The therapeutic use of alkalis in the relief of those forms of dyspnœa associated with acidosis may give temporary relief in nephritis; and, in some instances, the ketosis of diabetes has been found to yield to alkali and insulin when insulin alone was ineffective, but these observations are perhaps of academic interest rather than of great practical clinical importance.

Stimulation of the respiratory centre provides another theoretical possibility for the relief of dyspnœa. At first sight it might seem paradoxical to endeavour to increase the ventilation in cases of dyspnœa; but, from what I have already said, it will, I think, be apparent that we aim at increasing the depth and not the frequency of respiration. To this same mechanism I am inclined to attribute the relief which can sometimes be obtained in the paroxysmal type of cardiac dyspnœa from inhalation of the fumes of an ordinary ammonia smelling-bottle.

In this lecture I have merely touched on the fringe of a big subject. But I shall be satisfied if I have made it clear that we are progressing, not merely in unravelling the complex mechanism of dyspnœa from the scientific aspect, but also in the application of our new knowledge to the rational treatment of disease.

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SUMMARY OF RESULTS OF EXPERIME ON THE PROPHYLAXIS AND TREATMENT CHILDHOOD GOITRE

IN HEANOR, DERBYSHIRE.

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THE urban district of Heanor is situated i south-east of Derbyshire, on the southern end c coalfield. Its total population is approximately 2 It is a busy industrial area, the chief occupations coal mining, iron founding, and hosiery and manufacture. The district is hilly in all parts highest point being situated on Codnor Commo comprises Heanor, Marlpool, Langley, Langley Milnhay, Aldercar, Loscoe, and Codnor; all places have a common water-supply and no h now obtain their water-supplies from wells.

Water-supplies of the Area.

Before the introduction of the present supp 1902 the whole area depended upon surface wel the bulk of its water; there was also a local supply of bad quality, intermittent and t inadequate for the needs of the people. present supply is obtained from two sou viz.: (1) deep springs in the carboniferous lime in the vicinity of Wirksworth, 12 miles north-w Heanor; and (2) from two boreholes in the mil grit in the Derwent Valley close by the waterwo High Peak Junction, near Whatstandwell. The of the supply is obtained from the former (seven parts to three parts of borehole water). *limestone water is certainly liable to pollution*, b borehole waters are of exceptional purity (Ta A, B, C).

The softened water (Table I. (B) was turbi opaque, from the presence of white suspended consisting mainly of $CaCO_3$. The softened and fi water was clear and slightly greenish-yellow in c The softened water was decidedly alkaline fro presence of CaOH, whilst the softened and fi water was slightly alkaline from the presence of

The waters from the boreholes are of very s character and there is no indication of pollution free ammonia is of mineral origin. The waters free from lead and are satisfactory for d purposes. The analyses were made by Mr. White, the county analyst.

The water at the consumers' end is frequen spite of softening, carbonating, and filtering *turbid from the presence, as suspended matter, of c carbonate, in a very fine state of subdivision.* present time the water is softened with lim carbonated. There are not as yet a sufficient n of filters in use to deal with the total quantity of consumed. The water contains eight parts of per billion, the iodine content being among highest of any water-supply examined in Derb

Goitre has been endemic in this area for gener It was and is exceedingly common, though less in its endemicity than in days gone by. I have the above particulars, as those who are esp interested in goitre problems will appreciate significance.

Experiments with Iodised Sweets.

During 1926 a series of observations was carri by me in several schools in the Heanor Urban D on the effect of varying doses of iodine (as s iodide) upon the prevention and treatment of in children in the age-groups 8 to 17 years (incl The iodine was administered in the form of scotch sweets, each sweet containing the *equ* of 1/10th of a grain of iodine as sodium iodide. sweets were proved to be of standard streng analysis. In every case the written consent

ent was obtained before any treatment was plied.

Each child was first examined in the following nner :—

1) *Inspection of the Neck.*—The standard adopted s to include as goitrous any child whose thyroid at the final examination an allowance was made for natural increase in the size of the neck (for six months, 1 cm.; for 1 year, 1½ cm.).

(3) In a large number of cases photographs were taken before and after the experiments. This was found to be unreliable as a means of checking observations.

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Photographs showing goitres of varying degree according to the scale adopted.

visible on inspection, so as to cause an alteration he contour of the neck.

) *Measurement of the Neck.*—In the case of every ous child the neck was measured before and after experiments, from the tip of the seventh cervical e behind to the centre of the neck in front at the of the cricoid cartilage. In measuring the necks

Approximately half the children of each age were given iodised sweets, the remainder acting as controls. With the exception of the children seen at Codnor, who were specially selected and were few in number (24), the total number of children examined at the five schools was 925, of whom 663 were girls (aged 8 to 17) and 262 were boys (aged 8 to 13). A large

TABLE I.—*Analyses of* (A) *Raw Water from Limestone* (*Merebrook Sough: Source No. 1*), *17/8/26.* (B) *Merebrook Sough Water* (*Deep Spring in Limestone*). (C) *Borehole Waters.*

—	(A)	(B)			(C)	
	Parts per 100,000.	Softened.	Softened and carbonated.	Softened and filtered.	Parts per 100,000.	
					No. 1.	No. 2.
solids	35·0	26·0	26·0	18·0	22·5	22·5
ic and volatile	—	—	—	—	1·0	—
residue	—	—	—	—	21·0	—
nd saline ammonia	0·0	0·001	0·001	0·0	0·006	0·009
inoid ammonia	0·001	0·004	0·002	0·001	0·001	0·002
en as nitrates and nitrites	0·08	0·05	0·05	0·11	0·0	0·0
ne	2·0	1·95	1·85	1·9	1·3	1·45
n absorbed in 4 hours at 80° F.	0·003	0·016	0·022	0·014	0·005	0·006
Temporary	18·16°	9·20	8·15	2·16	11·10	10·43
ess Permanent	13·42°	6·43	9·71	8·14	8·32	7·43
Total	31·58°	15·63	17·86	10·30	19·42	17·86
rance in 2-foot tube	Cl. bl.	Turbid.	Turbid.	—	Turbid and greenish-yellow.	
ded matter	—	Present.	Present.	—	—	—
	—	—	—	—	Marked traces of iron.	
uity calculated as $CaCO_3$	—	6·40	—	4·30	15·90	—
,, CaOH	—	4·44	—	1·11	—	—
of iron and alumina	—	0·60	—	0·70	1·10	—
CaO	—	0·20	—	0·25	0·25	—
sia, MgO	—	9·00	—	2·00	4·90	—
ric anhydride SO_3	—	1·08	—	2·23	2·98	—
	—	4·46	—	4·12	0·96	—

Cl. bl. = Clear and bluish.

I. (B) and (C).—*Calculated Analyses showing the er in which the Acids and Bases may be Combined.*

—	(B) Parts per 100,000.		(C)
	Softened.*	Softened and filtered.	No. 1.†
m carbonate	3·70	2·10	8·75
hydrate	4·44	1·11	—
sulphate	7·58	—	—
chloride	0·78	—	—
sium carbonate	2·26	4·60	6·20
n chloride	2·39	3·10	2·14
sulphate	—	7·00	1·70

d and carbonated water = No result. † No. 2, no result.

TABLE II.—*Showing Results of Prophylaxis and Treatment of Goitre in Children with Iodine.*

School.	Age-group.	Duration of treatment.	Period of observation.	Amount of I_2 given.	Normal children. Increased in size.		Goitrous children. Increased in size.		Goitrous children. Decreased in size.	
					T.	Ut.	T.	Ut.	T.	Ut.
		M.	M.	Gr.	%	%	%	%	%	%
1. Girls.	8–10	4	6	1·6	15·4	4·6	44·4	14·3	33·3	28·6
2. ,,	8–13	4	6	1·6	15·2	19·4	36·6	35·0	31·7	47·5
3. Boys.	8–13	4	6	1·6	6·0	11·1	27·7	41·7	33·7	44·7
4. Girls.	8–13	10	12	4·4	19·7	18·0	53·9	43·7	32·3	46·9
5. ,,	10–17	2½	6	5·0	31·2	26·9	38·1	23·5	19·1	29·4

M. = months; Gr. = grains; T. = treated; Ut. = untreated.

number of those who left school before the completion of the experiments are not included in the returns (Table II.).

Normal.—In two of the groups (Nos. 2 and 3) the percentage of increase in size (i.e., those who developed visible signs of enlargement of the thyroid) amongst those untreated is greater than amongst those who were treated. In the three remaining groups, however, the position is reversed, where the percentage of increase in size is greater amongst those treated than in those who were *not* given iodine. The excess percentage of " increase in size " of the treated over the untreated is in one case as much as 10·8 per cent. The conclusion I draw from these results is that normal children in this goitrous area are, on the whole, better without iodine, even in small amounts.

Goitrous: (a) Increased in Size.—Amongst those who were treated with iodine the percentage of goitres which actually increased in size is in excess of the percentage of those which increased in size in four groups of those which were untreated (Nos. 1, 2, 4, and 5). In group No. 3 (boys) there were more which increased in size amongst the untreated than amongst the treated.

(b) Decreased in Size.—In a large number of instances those who were marked as having " decreased " were found to have lost their goitres entirely. This was the case both in those who were given iodine and in those who received no iodine. The remarkable fact is that as many as 47·5 per cent. of goitres in childhood disappear or decrease in size spontaneously. I have observed this tendency before in many children; McCarrison has done the same. In forming an opinion regarding the value of iodine in the treatment of childhood goitre insufficient notice has been taken by many people of this tendency to spontaneous disappearance. There is little doubt that many of the alleged cures following the use of iodine would have happened without it. In four of the groups (Nos. 2, 3, 4, and 5) there is an *excess* of percentage of those which decreased in size amongst those who were not treated over those who were treated with iodine.

Conclusion.

The observation of a large number of school-children over periods ranging from 6 to 12 months proves, in this particular goitrous area, that a large number of goitres seen between the ages of 8–17 either decrease in size or disappear entirely without the aid of iodine. The results of treatment of cases of goitre show that, whatever their cause may be, deficiency of iodine cannot be the cause, on account of so many being adversely affected.

In this connexion the recent work of R. McCarrison[1] proving that diets defective in their vitamin content, and, in particular, vitamin B, are capable of causing goitre of a type hitherto unproduced experimentally and in no way related to iodine intake is illuminating.

Whilst no actual harm has been observed in any individual child the good which has been done in those who responded favourably is overbalanced by the considerable number of those whose goitres have reacted unfavourably to the treatment. In other words, both the prophylaxis and treatment of goitre with iodine is not to be recommended as a general measure. It is not difficult to cause considerable distress with iodine, and as far as treatment of goitre is concerned this is a matter either for clinics or the attention of individual doctors.

The administration of the *equivalent* of 5 gr. of iodine as sodium iodide during two periods of five weeks each within six months would be deemed by many to be sufficient to prevent the onset of any goitre in those receiving it, but in spite of this amount over 31 per cent. of girls developed goitre during the period of observation.

Much smaller amounts of iodine as iodide have been claimed not only to prevent goitre, but to do many other things as well. I have not observed that inhabitants of Derbyshire are in any way thic headed than the inhabitants of other counties, th their necks may be thicker; indeed, it is by no m unusual to find children with quite large goitres are sharp, intelligent, and well developed. In n instances the goitres seen in children are nothing than physiological swellings, and it is an impertin to interfere with them.

It is perhaps worth recording that at the examinations I took pains not to know which chil received iodine or which child had been untr until the examination of the school had been pleted.

I acknowledge with pleasure my indebtedne Dr. W. M. Ash, the county medical officer of healt Derbyshire, for permission to publish the figures in this paper.

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TYPHOID CARRIERS IN WESTER NORWAY:

RESULTS OF CHOLECYSTECTOMY.*

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ON the Western coast of Norway typhoid a paratyphoid B are still rather frequent. distribution is very unequal; in certain localiti disease is constantly recurring, whereas other areas are quite free A distribution of this kind s strongly for the presence of carriers.

Since 1919 a systematic search for carriers has undertaken at Dr. F. G. Gade's Pathological Ins in Bergen. Up to the present 42 carriers have found—18 typhoid and 24 paratyphoid B.

Of this total number one-half are old chronic c found in the endemic foci mentioned, 14 are new found by a careful control of convalescents whe excretion of bacilli has persisted more than a year, found by bacteriological examinations of gall-bl surgically removed for stones, and 5 by post-m examination. Of these 42, 3 were urinary carrie 39 intestinal carriers. In this latter group there 2 men and 37 women. The preponderance of the sex which is found everywhere is in our material even than usual. While in Germany about 75 per cent. hav found to be women and in Denmark 77 per cent., material the percentage at present is about 95 per cen

These carriers are scattered all along the coas to their occupation about half of their total numb wives of small farmers, having to do both the c for their family and the milking for sale. On i gation of the modes of infection for the seco cases, which are known to be infected from carriers, it is found that at least two-thirds of are due to milk or food infection. In the other the cases occur in the carriers' own family an be put down either to personal contact or t and food again. Thus in the cases studied mi food infections are dominant. The simplest w meet this danger, as far as the general pu concerned, would be to pasteurise all milk in districts, but so far it has been of little avail t for pasteurisation. As yet the State has beer too willing to give compensation for lost inco these carriers. The problem how to prevent in from them is therefore in Norway very di perhaps more difficult than in most other cou and one is forced to look around for some other to deal with them.

Removal of the Gall-bladder.

The main point of interest about these car that in a certain number of them the surgical re

* Read at the Pathological Section of the Royal So Medicine, Nov. 15th, 1927.

he gall-bladder has been carried out, as an attempt obtaining a final cure. It is well known that there close connexion between the carrier condition and presence of gall-stones. Without entering upon question of the relation between chronic typhoid lecystitis and stone-formation, it is enough to say t once a stone is formed which is too big to be reted through the bile passages, this will, for an finite period, prevent the gall-bladder from freeing lf from the typhoid infection. As long as the ie remains in the gall-bladder it both hinders hanically the complete evacuation of the infected and the fresh in-coming bile is reinfected by the ie. It is important to know whether stone-nation in the gall-bladder is the only typhoid focus hese carriers. There seems to be some confusion cytes have free access. Practically speaking, it is only where the bacilli are given facilities such as are afforded by a gall-bladder with stones or by the renal pelvis that the typhoid infection can be chronic.

This reasoning suggests that the carrier state as a rule is due to a purely local process in the gall-gladder. Where internal treatment does not help, and where every hope of spontaneous recovery must be given up there is only one rational treatment—namely, to remove the gall-bladder and drain the hepatic duct.

The removal of the gall-bladder is no small operation, but there is so much at stake that it may be fully justified. When the neighbours realise the constant danger of infection the carrier's existence out in the country is generally so miserable that he often prefers to take even a heavy risk, if there is any chance of

RESULTS OF CHOLECYSTECTOMY IN 14 CARRIERS OF TYPHOID AND PARATYPHOID B.

Sex and age.	When infected.	Operation.	Found at the operation.			Examination after the operation.				Notes of later examinations, fæces, and urine.
			Gall-stone.	Histology of gall-bladder.	Culture from bile.	Bile fistula.	Fæces.	Urine.	Duodenal contents.	
F., 18	1918	7/8/20	+	Normal.	Typhoid.		–	–		6 neg. tests in 1920 (110 days).
F., 29	1916	6/10/20	+	Normal.	Para. B.		2, 8, & 20 days +; later –.	–		22 neg. tests, 1920–26 (5¼ years).
F., 42	1919	25/10/20	–	Normal.	–		+ Typh.	–	+Typh.	Continued excretion of bacilli (7 years).
F., 66	1919	22/4/21	+	Chronic cholecystitis.	Typhoid.	6 and 14 days +; later –.	–	–		16 neg. tests, 1920–21 (1 year).
F., 45	1917	7/9/21	+	In the main normal.	Typhoid.		5 days +; later –.	–		24 neg. tests, 1921–22 (1¼ years).
F., 37	1922	12/5/24	+	Chronic cholecystitis.	Para. B.					Dead 6 days after operation.
M., 42	1906	28/1/25	+	Chronic cholecystitis.	Typhoid.		–	–		6 neg. tests, 1925 and 1926 (1½ years).
F., 34	?	27/12/24	+	Acute and chronic cholecystitis.	Para. B.	18 days +; later –.	2 days +; later –.	–	–	9 neg. tests, 1925–27 (2¾ years).
F., 53	?	9/2/26	+	Chronic cholecystitis.	Para. B.	25 days +; later –.	–	–		10 neg. tests, 1926–27 (1 year).
F., 50	?	8/12/25	+	Chronic cholecystitis; pus in gall-bladder.	Para. B.	4 days +; later –.	–	–		5 neg. tests, 1925–27 (1½ years).
F., 28	1925	31/3/27	+	Chronic cholecystitis.	Para. B.		–	–	–	6 neg. tests, 1927 (¼ year).
F., 24	1925	22/7/26	+	Chronic cholecystitis.	Para. B.	20 days +; later –.	–	–	–	6 neg. tests, 1926–27 (¾ year).
F., 23	1925	20/10/26	+	Chronic cholecystitis. Adherences to intestines.	Para. B.	14 days +; later –.	–	+		Gall fistula remains open. Urinary infection with paratyphoid. Tuberculosis of cervical gland.
F., 36	1926	8/1/27	+	Acute cholecystitis.	Para. B.		–	–	–	5 neg. tests (¼ year).

In this case the operation was cholecystostomy, because of the condition of the gall-bladder. In all other cases cholecystectomy.

this point, partly at any rate due to the fact the distinction has not always been made sharply gh between the more immediate after-effects of oid infection and the ultimate chronic carrier tion. In this chronic stage the gall-stone ubtedly plays by far the more important part. e is, of course, the possibility that in some cases rocess can go further. In one post-mortem case, ldition to cholecystitis and numerous stones, ave seen a paratyphoid cholangitis of the liver secondary cirrhosis and primary hepatic carna. But cases of this kind will give clinical toms, and they are late complications. It can be said that, as a rule, in the average healthy r, where there are no symptoms of a more faring process, the infection of the gall-bladder is an ed remnant of the infection. All surgical work gall-stones shows that, at any rate for a long this process is localised to the gall-bladder. The holds good for the typhoid gall-stones. Of erated cases in our series 13 show the process sed to the gall-bladder and to the gall-bladder . In this respect there is no reason to argue ently about a stone appearing after typhoid about stones of a different ætiology. After oid the organism is on the whole immunised st its own bacilli, and they have no chance of ving indefinitely where blood serum and leucogetting rid of the infection. Also, a stone in the gall-bladder is in itself serious enough, because of the possible complications, to justify the question of early removal being raised. And finally, from the point of view of the public health, the danger of spreading infection is often very great.

Indications for Removal.

Before the question of operation can be raised it must first be shown that the carrier state is a lasting one, that cannot be altered by internal treatment. Next the process must, as far as possible, be localised to the gall-bladder. Positive findings of typhoid bacilli in the fæces and in the duodenal contents, coupled with their absence from the urine, make it very probable that the process has its seat in the gall-bladder, this being the ordinary localisation, but this is not necessarily so. Complete certainty is only possible when there have been symptoms of gall-stones or where it is possible to demonstrate gall-stones by X rays. In some cases, but probably only rare ones, the process may be outside the gall-bladder, as has been the case in one of our 14 patients who were operated upon.

When these points are settled the surgeon will have to decide whether special contra-indications are present. In younger persons, where the operation may be supposed to be well tolerated and where there is no

reason to think of complications and no hope of spontaneous recovery, it seems rational to try operation, and we have systematically advised such carriers to have the gall-bladder removed.

Results of Operation.

Up to the present time 12 chronic carriers have been treated by removal of the gall-bladder; two further cases were operated upon for gall-stones and may be considered in the same series as paratyphoid organisms were found in pure culture from the gall-bladder. Of these 14 operations two have had an unfortunate course. One, a female inmate of a lunatic asylum, died six days after the operation. Post mortem it was found that the common bile-duct was ligatured and the bile was flowing into the peritoneum. The other showed at the operation adhesions round the gall-bladder; after the operation the flow of the bile through the external fistula persisted, but a second laparotomy failed to show any definite cause for this. A biliary fistula has in this case kept open; urinary infection with paratyphoid B has supervened and on the top of all this the patient has developed tuberculosis of the cervical glands.

In the other 12 cases the course after the operation has been quite normal. The flow of the bile through the fistula has ceased in a couple of weeks and the patient has left the hospital, in some cases as early as three weeks after operation, though as a rule the patient has been kept in the hospital for some time for the sake of the bacteriological control of fæces, urine, and duodenal contents.

In one of these 12 cases the action of the operation on the excretion of bacilli has been nil. In this case the operation showed that a wrong diagnosis was made as to localisation; there was no gall-bladder infection, the bile being quite sterile, and no stone. In this case the duodenal contents were not examined before operation, but they have been examined once later, and typhoid bacilli were found. The excretion of bacilli has in this case continued for seven years after operation, and to the present day it is not known where the infection is localised. The possibility of stones in the pancreatic duct has been considered, but no sure evidence of their presence has been found, either by X rays or by examination of the diastase reaction in the urine. We have here stumbled upon one of the exceptions from the rule and, at the present it seems as if we have no means of recognising such exceptions beforehand.

In the other 11 cases the operation has been quite successful, as also the excretion of bacilli by the fæces has stopped. Typhoid or paratyphoid bacilli can be found in the fæces some days after the operation; in one case paratyphoid bacilli were found for 20 days, but after this lapse of time it has not been possible in these 11 operated carriers to find the specific bacilli.

Bacteriological Control.

The bacteriological control of these operated cases has been made as complete as possible under the existing conditions. During the first period after the operation the fæces, urine, and in some of the later cases the duodenal contents have been controlled in the hospital as frequently as it has been found practicable. After discharge from hospital the examination of the fæces has continued, the patients sending to the laboratory samples of their fæces, taken after laxatives and under as much control as possible. The details of this examination will be found in the table. The length of time it has been possible to continue this control and the number of the examinations vary a good deal in the different cases; in one case the control has extended over 5¼ years after the operation with 22 negative tests. In later cases the demands for control have been lowered to one year and in a couple of cases there were 24 and 16 negative tests in the first 1–1¼ years after the operation. In other cases, again, the patients have been less willing to submit to the control, and it has only been possible to obtain more sporadic examinations; the numbers will be found in the table appended. The last operated ca are still under observation.

In addition to this bacteriological control there another mode of control possible in these cases. T population is relatively sparse on the Norwegian co and on the whole there is little difficulty in keep in contact with the operated cases and keeping effective epidemiological observation. Every case of typhoid in this part of the country is repor upon to the epidemiologist with all particulars ab their source of infection. Every new case of typh in the surroundings of these patients would at o attract attention, also every case in which sc connexion with an operated carrier might be e suspected. During the years that have passed si operation (the first patient having been operated as long as seven years ago) there has not bee single case of typhoid in the immediate surroundi of any of the operated carriers and no case in wh there even was a suspicion of any of them hav caused infection.

In consequence, so far as the observations go up November, 1927, both the bacteriological control a prolonged epidemiological observation offer evide to show that the operation of these 11 carriers effected a definite and lasting cure. Consequently operation may be justified in cases otherwise suita as a means in the systematic war against typh As long as there is no sure method of dissolving gall stones we shall have to fall back upon operation in cases where we wish to make an attempt at cu typhoid carriers, and we believe it is evident tha suitable cases a lasting cure may be effected.

CATARACT EXTRACTION WI PERIPHERAL IRIDECTOMY

NOTES OF TWO CASES.

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EXTRACTION of cataract is an operation which l itself to a considerable number of modificati varying according to the nature of the eye and practice of the particular surgeon. At one time operator is quite content with an incision whic entirely corneal, while at another he is anxiou have a considerable conjunctival flap. One sur is satisfied with a mere division of the anterior ca of the lens, another endeavours to remove a pie the capsule, while a third aims at nothing less the removal of capsule and lens intact. The iris may be dealt with in three different ways. One me is to replace it in position, intact, after expressing lens; this operation is known as simple extrac Another method is to perform iridectomy, to re a portion of the iris, including the pupillary bo before removing the lens; this procedure is te combined extraction. The third method consis removing a small portion from the periphery o iris, usually after the lens is delivered; this is modern than the other two methods, and has ce advantages over both.

Prolapse of Iris.

Simple extraction, when successful, yields exce results. Unfortunately, however, it runs the ri a very serious complication—namely, pro of iris. This has been described as "la bête n of simple extraction. It may occur after the skilfully performed operation, and in that ty tranquil patient that is usually associated wi perfect result. At the first dressing, 24 or 48 h after the operation, the surgeon observes a po of the iris at the corneoscleral margin protru through the wound. This means that the woun opened, that aqueous has escaped, and that the

ish of aqueous has carried with it a portion of the is, which has remained between the lips of the ound. While it is true that a small incarceration iris in the wound—short of prolapse—may reduce self, and while tags of iris in a wound frequently rophy and cause no further trouble, yet prolapse iris delays healing of the wound, the aqueous con- nues to drain away, the anterior chamber remains en for a longer time, and so the risk of infection is creased. Infection may take place before the wound als, or it may occur later through the resulting catrix. If the piece of iris is not removed before lhesions occur, subsequent treatment is difficult and satisfactory. To operate on a prolapsed iris even on after its occurrence is difficult, because of the creased sensitiveness and irritability of the eye- ll, and a general anæsthetic is often necessary. ilure to deal effectively with prolapse of iris will nost certainly lead to further trouble. The cicatrix hich forms is permanently weak, and may yield fore the intra-ocular tension of the eyeball, forming ystoid cicatrix. Delayed infection is probable and ious. The patient complains of recurrent attacks redness and pain, a condition which at first yields treatment, but which readily relapses, the attacks coming more severe until intractable chronic clitis with its sequelæ is established. Sympathetic nthalmia is not unknown. It is surprising how quently microscopic examination of an eye in which clitis has followed cataract extraction reveals the sence of a small incarceration or prolapse of iris.

Many reasons have been given for the occurrence prolapse of iris after simple extraction. Most geons are agreed that anything which delays the ling together of the wound edges increases the of prolapse. A technique should be adopted ich will bring the lips of the wound together in fect apposition. The corneal puncture and counter- cture should be made about 1 mm. above the izontal meridian, and great care should be taken see that the plane of the incision remains parallel h the plane of the iris, otherwise the operator will bably find the wound gaping a little after the lens been expressed. When the lens is being extracted, iris must not be handled too roughly, or an atonic dition of the musculature will be induced pre- posing to prolapse. Atony of the iris occurs more quently when the cataract is hypermature. Another disposing cause of prolapse is avoided by expressing t of the cortical lens matter after the nucleus has n delivered. Prolapse of iris may be accidental. essive pressure from the patient's fingers or the dage, or careless manipulation of the bandage reopen the wound. Restless, anxious, nervous, tupid patients, or those with chronic cough, are e likely to have a rupture of the wound.

1897 Fuchs drew attention to the fact that apse of iris may occur in spite of the most perfect nique, and even in the most tranquil patients. nay occur when least expected, not infrequently ng the first night after operation, probably when patient is asleep. Fuchs suggested that it is ciated with a rapid agglutination of the wound. eous collects in the posterior part of the aqueous nber; for a time the balance between formation drainage of aqueous is upset, and the accumula- of aqueous continues until it reaches a point it causes a sudden opening of the wound. The ous behind the iris must escape, and as it does so rries with it a portion of the iris.

Operative Modifications to Avoid Prolapse.

hose who practise simple extraction of cataract routine must be prepared, on occasion, to deal prolapse of iris, and they will probably lose eyes as a result of chronic cyclitis. Because of many surgeons perform combined extraction. re expressing the lens, they deliberately excise rtion of the iris extending from the pupillary to the attached margin. This not only facilitates emoval of the lens, but also reduces the tendency rolapse. In some cases preliminary iridectomy may be performed some weeks before extraction of the lens.

Combined extraction, while certainly reducing the risk of prolapse of iris, has the disadvantages of loss of a functioning pupil. To avoid these the method of limiting iridectomy to the periphery of the iris has been introduced. After the lens is delivered, a small button-hole is made in the iris so that the sphincter iridis muscle is left intact. This method has three advantages over combined extraction. First, there is less disfigurement, probably none. When a portion of the iris extending from the attached margin to the pupillary edge is removed the coloboma is easily seen on close inspection. Most patients do not mind this disfigurement, but occasionally one does meet objections to what certain fastidious Americans call "the inverted keyhole." The peripheral hole in the iris, on the other hand, is covered by the upper lid, or is hidden behind the limbus corneæ, and is seen only when the patient looks up. In the second place, when the sphincter muscle is severed, the advantages of a contracting pupil are lost. When a strong light falls on the eye, the pupil normally contracts, but when this reflex is interfered with, a certain amount of dazzling must follow. Astigmatism resulting from the corneal wound will also be more troublesome when there is an extensive absence of iris underneath. These optical defects, however, are not of great importance, especially when correcting lenses are worn. The most important advantage of peripheral iridectomy over total iridectomy is that it entails less risk of prolapse of the lens capsule after extraction of the lens. Complete iridectomy is performed before the lens is expressed; then, after removal of the lens, the edges of the coloboma are replaced as far as possible with a spatula. The lens capsule at this stage is transparent, and one cannot always be sure that its remains are replaced in good position. In the other method, the iris is replaced intact with a spatula, and this is much more likely to prevent capsule protrusion. Then, when the iris and capsule are in good position, peripheral iridectomy is performed.

Historical Survey.

Peripheral iridectomy in cataract extraction was first performed by Charles Bell Taylor, of Nottingham. In 1871 he published a method of "extracting cataract by a peripheral section of the iris without injuring the pupil." Taylor removed a piece from the periphery of the iris *before* expressing the lens. The portion removed, while leaving the pupil intact, must have been of considerable length and oval rather than circular in shape, because the lens was expressed through the gap in the iris instead of through the pupil. In introducing this method, Taylor emphasised two points: (1) the risk of prolapse in simple extraction; (2) the advantage of a round pupil.

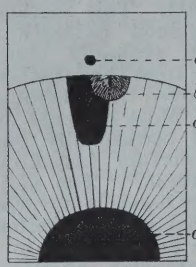
In 1890 H. B. Chandler, of Boston, described a somewhat similar method. He also performed peripheral iridectomy *before* dealing with the lens, but he delivered the lens "in the normal way," that is, through the pupil, and not through the gap in the iris.

The next important modification seems to have been introduced by Pflüger, of Berne. In 1897 he resuscitated the operation, and brought it before the notice of ophthalmic surgeons at an international meeting in Moscow. His modification consists in removing the peripheral piece of the iris *after* the lens is delivered. This alteration met with approval, and has remained the general practice. The operation is generally known as Hess's operation, but Hess did not introduce it. He did much, however, to render it more popular in Germany. In 1909 he reported his experience of 1000 cases. His special forceps for picking up a portion of the iris at the periphery is very widely used at the present time. Hess held that peripheral iridectomy is more successful than total iridectomy in preventing prolapse of iris.

From time to time operators have reported their results, and it appears that the operation is being

more frequently performed now than formerly. In 1923 Barkan, of San Francisco, published a careful analysis of 249 consecutive cases of extraction of cataract performed by Prof. Meller, of Vienna. In 180 of these cases Meller had performed peripheral iridectomy and, from his study of the results obtained, Barkan was convinced of the efficacy of this operation in preventing prolapse of iris. In 180 cases with peripheral iridectomy prolapse of iris had occurred twice, while in 46 cases of combined extraction prolapse had also occurred twice. Barkan adds: "A large capsule bite, persistent massage of the débris, peripheral iridectomy, and perhaps 10–20 per cent. discissions will yield as good an average result as any intracapsular operation, and much less actual loss."

FIG. 1.



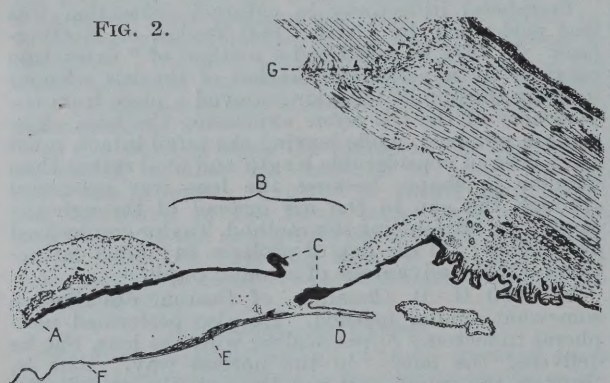
A. Small nodule of pigment under conjunctive. B. Proliferating pigment epithelium on posterior surface of cornea. C. Peripheral hole in iris. D. Pupil.

Peripheral Iridectomy.

Prolapse of iris after peripheral iridectomy is very rare. Sometimes, however, a little nodule of pigment appears under the conjunctiva after the wound has healed. The following case illustrates this less important complication.

Z. E., a male, aged 60 years, had a cataract extracted from the left eye on Jan. 9th, 1924. The eye healed well, and the patient was discharged from hospital a fortnight later. On August 28th he was readmitted to hospital for extraction of cataract from the right eye, and on this date the left eye was re-examined. The scar wound was found to be firm and flat, the anterior chamber was deep, and though some lens capsule remained, there was a central hole in it. V.A.L. $\bar{c} + 10{\cdot}5$ D.S. $= 6/6$, $\bar{c} + 14{\cdot}0$ D.S. $=$ J.I. On this date it was recorded that there was a small punctate pigment mass in the region of the wound. The cataract in the right eye was extracted on August 29th, with peripheral iridectomy. On March 30th, 1927, the patient returned to hospital for re-examination. He had no complaint and could see 6/6 and J.I. with each eye with correcting lenses. The corneal microscope and slit-lamp revealed an interesting condition in the left eye. Under the conjunctiva, on the outer surface of the wound, above one edge of the gap in the iris, there was a small black nodule of pigment—Fig. 1 (A). Underneath this, on the inner or posterior surface of the cornea, there was a dark flattened area of proliferating epithelium (B); this was not so densely black as the outer nodule, it was more rarefied and flattened, and showed dark radiating lines like the wing of a fly. One feels sure that if a microscopic section could have been prepared of the corneal wound, pigment would have also been found extending through the wound. There was no anterior synechia.

FIG. 2.



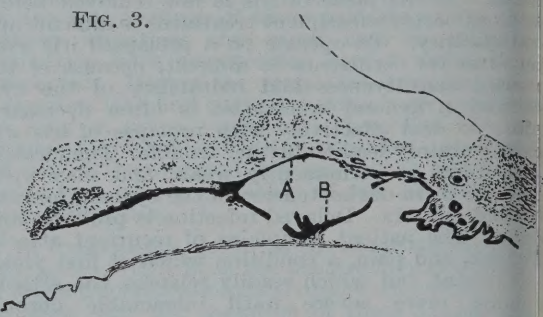
A. Sphincter iridis muscle. B. Gap in stroma of iris. C. Pigment epithelium of iris. D. Remains of anterior capsule of lens. E. Cortical lens matter. F. Posterior capsule of lens. G. Corneal cicatrix.

In this case cataract was extracted from both eyes by the same method. In each eye the vision was 6/6 and J.I. with correction, and the patient had no complaint. In one eye, however, there was pigm about the wound as described, while in the other there was no such complication. Neither eye shov any inflammatory reaction, yet the eye with pigment in the wound seems more likely to su from late infection.

Another case seems to throw some light on anatomical explanation of the presence of pigment.

H. Z., a female, aged 57 years, had a mature cataract the right eye and an incipient cataract in the left eye

FIG. 3.



A. Anterior layer of pigment epithelium of iris. B. Poste layer of pigment epithelium of iris.

April 28th, 1926. In childhood she had had inflamma in the right eye. In the right eye there was a superf scar of the cornea, the anterior chamber was of med depth, a little deeper than in the left eye, the pupil and were normal, and the lens was opaque, the cataract ext ing forwards to the anterior capsule. Light perceptio 6 metres was present, and light projection was good. cataract was extracted from the right eye on April 3 and peripheral iridectomy was performed. Prior to ex sion of the lens, a portion of the anterior capsule was rem with capsule forceps. Next day the anterior chamber deep, and very little remaining lens matter was to be s Subsequent healing of the eye was normal. The pa developed lobar pneumonia, and on May 12th was tr ferred to the Department of Internal Medicine. D took place on June 3rd, 1926.

The right eye was obtained for pathological examina A piece of the eyeball was removed on the nasal side, then vertical sections were prepared, 20 μ in thickness.

Fig. 2 is a drawing prepared from one of the sect passing through the hole in the iris. The sphincter i muscle is intact, and peripheral to it there is a gap in stroma of the iris (B). While a portion of the strom the iris has been removed, the corresponding portion o posterior pigment epithelium has been left behind This pigment layer has torn through at one point; it m easily tear at another point and then it would lie free i anterior chamber, and readily pass into the corneal wo this would give rise to the condition seen clinically in Ca Another interesting point is seen from the sections. F represents a section passing near to the hole in the it shows that the actual line of separation has been between stroma and pigment epithelium, but between two layers of the pigment epithelium. These two l of cells are only loosely attached to each other, they frequently separated in traumatic lesions of the eye, cysts in this situation are not uncommon.

In performing peripheral iridectomy the sur should endeavour to excise a piece of the w thickness of the iris. He must not press his for too deeply into the iris or through the hole in iris, or he will take vitreous, and probably find a wards a small synechia of the vitreous. No piece of the posterior pigment epithelium mus left behind, or it will probably become lodged in corneal wound, and may interfere with proper hea

There are certain cases in which it is bette perform total rather than peripheral iridect Generally, total iridectomy is preferable, where t is an increased risk of infection. If infection sh take place, the more complete mydriasis obta with atropine, when the sphincter iridis muscl severed, is an advantage. Chronic conjunctivit history suggesting infection of the lacrymal sa a highly pigmented iris rule out peripheral iridect The increase of pigment in the iris is suppose

associated with an increased toughness of the tissue, which makes the iris less susceptible to the of atropine. When for any reason it is considered visable to remove the lens in a case of intumescent aract, it is better to perform total iridectomy. e amount of cortical matter to be removed is reased, and it is more easily removed when there coloboma of the iris. Escape of vitreous generally es place after the lens is expressed, so there should as little manipulation as possible after delivery of lens; where there is increased risk of escape of reous, as in high myopia, preliminary complete ectomy is therefore more appropriate than peri-ral iridectomy, which is usually done after delivery he lens.

part from these exceptional cases, cataract raction with peripheral iridectomy will largely lace simple extraction and combined extraction, e it combines the advantages of both.

he two cases recorded above are from the First Clinic, General Hospital, Vienna, and I desire to nk Prof. Meller for his kindness in allowing me to e use of his material. I also thank Dr. A. Fuchs his suggestions and encouragement.

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TREATMENT OF
RGICAL TUBERCULOSIS IN CHILDREN
WITH SPECIAL REFERENCE TO TUBERCULOUS DISEASE OF THE SPINE.*

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NTIL a specific remedy for surgical tuberculosis scovered the modern conceptions of general and treatment will prevail. The modern method of eral treatment aims at increasing the patient's ral resistance to infection and demands a special of hospital, specially equipped, staffed by experts, specially designed in suitable surroundings. re selecting the site meteorological records should aken of the area over a considerable period. perature, humidity, sunshine, rainfall, nature of il, elevation, and prevailing winds should be tained. The temperature should be variable n limits. The humidity should be low, seldom ng above an average of 60 per cent. for the year. hours of sunshine should be as high as possible e district. A site with a high rainfall and a loose subsoil is better than a site with a moderate all and a heavy clay subsoil in a sheltered ion. These factors have a decided effect upon ocal humidity. The site should be the highest nable in the neighbourhood. The institution d be erected on a southerly exposure. Humidity tremely important, as it influences the number urs of exposure to the sun and air that can be itted in the year. The more a patient can be sed in the open air to the radiant energy of the the better will his powers of resistance become. h humidity makes it impossible to expose patients for any length of time, as the heat loss from the body is too great, whilst evaporation of water from the skin is small. The metabolism of the patient in the presence of a high humidity is not increased to the same extent as when the temperature is high and the humidity is low, and there is not the same flushing of the respiratory mucous membrane. The degree of humidity is decidedly influenced by the nature of the subsoil and the prevailing winds. At Ascot we find that the humidity rises with a west wind and falls with an easterly wind. A high humidity is especially trying to patients under 7 years of age and to weak, debilitated patients who are apt to develop nephritis after persistent exposure. A sheltered site should not be chosen as the movement of air over the exposed body has an enormous effect on its radiation of heat and evaporation of moisture. This is shown in the calm suffocating days of midsummer, when the patient demands to be taken inside.

Principles of Heliotherapy.

Covered-glass verandahs should on no account be erected as they become hot-houses in the summer and reduce the air movement in winter.

Heliotherapy practised under ideal climatic conditions has a most beneficial effect upon the patient's metabolic and mental processes. It must not be forgotten that many patients soon become acclimatised to their environment; they develop a tolerance and cease to react. On the other hand, some cases may be tired out by over-stimulation, to the detriment of their general condition. Patients who rapidly develop a tolerance are those that respond and pigment readily. Their metabolic processes cease to increase, and it is of value to have a second institution under different climatic conditions to which cases of this kind may be transferred. The great value of heliotherapy is largely due to the ever-varying conditions which call for an effort of the organism and help to maintain the individual response. The patient is kept in a condition of unrest, and so long as the strain is not too great, so long will benefit result. The symptoms of fatigue are lassitude, sleeplessness, loss in weight combined with a stationary or retrogressive condition of the local lesion. Gross overdose is recognised by excessive erythema, malaise, pyrexia, and increase in pulse-rate. In children under 7 overdosage has to be carefully avoided.

Phototherapy.

The benefit of phototherapy in surgical tuberculosis is now well recognised. Its results are not so brilliant as those obtained from heliotherapy under ideal conditions, but it is a decided acquisition where heliotherapy cannot be practised for long periods of the year. Heatherwood Hospital, Ascot, is an official air station of the Air Ministry, so records of the weather conditions are kept daily. I have prepared a chart from October to March for the past five years which shows that it would not be desirable to expose children under such conditions.

Meteorological Records at Heatherwood Hospital: October to March, 1922 to 1927.

—	1922–3.	1923–4.	1924–5.	1925–6.	1926–7.
Aver. temp. °F. ..	42·8°	40·9°	43·3°	42·8°	42·5°
Aver. relative humidity.. ..	90·6 %	90·2 %	90·3 %	89 %	86·2 %
Days with rain ..	87 = 47·9 %	90 = 49·4 %	93 = 51 %	87 = 47·9 %	95 = 52·2 %
Days with no sun..	62 = 34 %	63 = 35·2 %	63 = 35·2 %	53 = 29 %	68 = 37·3 %
Per cent. hours with sun	25 %	28·5 %	21 %	26·6 %	25 %

I maintain that a properly constructed and equipped artificial light department is essential in a hospital for surgical tuberculosis. Although many of the claims made for phototherapy cannot be substantiated either by physiological or biochemical evidence, it has proved its value and is an important form of treatment in countries where the climatic conditions during the

*ased upon a paper read at the International Congress of stitute of Public Health, Ghent, 1927.

winter months do not permit of heliotherapy or aerotherapy.

It should in no way supplant any orthopædic measures, but should be used in conjunction with and secondary to immobilisation in all cases. I consider that we are in grave danger of losing perspective in the present wave of enthusiasm for light treatment. Orthopædic treatment should undoubtedly take precedence in all cases. It is wrong to take from a patient suffering with tuberculous arthritis his mechanical apparatus for immobilising the joint, in order to expose a large area of skin surface. Immobilisation should be maintained at all times. The retentive apparatus should be designed so as to carry this into effect, whilst at the same time permitting the exposure of as much skin surface as possible. Failure to appreciate this will bring both heliotherapy and phototherapy into disrepute, and the good results which can undoubtedly be obtained in every case when the two methods are properly coördinated will not be forthcoming. Without adequate immobilisation, bone destruction will progress, deformities will arise, and abscess formation will occur.

In erecting an artificial light department, the natural Alpine sun conditions should be imitated as far as possible. This demands attention to space, ventilation, and a variety of lamps of different ampèrage and type. It must be recollected that no ray or group of rays is specific for tuberculosis. Their action upon the human body is enhanced by attention to the other factors. The general light bath in the absence of factors such as temperature, moving air, and the change of stimuli may do harm. The chief aim of phototherapy is to increase the patient's metabolism and raise the hæmobactericidal power of the blood, thereby raising the general resistance of the patient to the tuberculous infection. It has been definitely proved that artificial light per se does not raise the metabolism; it induces the production of increased tissue change by reduction and oxidation of the cellular constituents, but these are apt to stagnate unless there is movement of fresh cool air over the skin surface and into the lungs.

The Equipment of the Light Room.

We are satisfied with the window gravity system in combination with an extractor fan by which 26 changes of air can be obtained in an hour. The fan and ventilators are capable of adjustment to meet the varying external atmospheric conditions. Provision should be made to heat the department so that naked patients do not come into a cold room. The roof of the department should be arched, and have large ventilating grids at the summit. The carbon-arc lamp has proved the best source of radiation for surgical tuberculosis; it should be remembered that it burns at a temperature of 2000° to 3000° F., so that an adequate ventilating system ensures good cooling of the patient's body. It is bad practice to allow patients under treatment to perspire profusely; it is most debilitating and fatiguing, and the object of the treatment is to stimulate. Good cooling of the body with evaporation assists metabolism. No draughts should be created, as they affect the burning of the arc. We attempt to maintain the temperature of the light room between 65° and 75° F. Variation to prevent tolerance is obtained by using different ampèrage carbon arcs with differently cored carbons, alternating with the mercury-vapour type. In this way the response of the patient to the stimuli is maintained and no lack of mild erythema is seen after treatment.

According to Grotthius's law, only rays which are absorbed have any chemical action. As the penetrative power of any ray of light depends upon its angle of incidence, it is important that the surface of the patient's body should be at right angles to the direction of the rays. The rays of the carbon-arc lamp with direct current are emitted in a cone of light in a downward direction. The patient should be at a lower level than the source of light. All patients with active disease are treated in the prone position and strictly immobilised by a number of straps on a rotatory frame specially designed for the purpo. Ambulant patients sit with specially designed cellulo splints. The body is divided into four surfaces- anterior, posterior, and right and left lateral. T initial length of treatment is 30 minutes, divid equally for these four areas. The maximum length f treatment is two hours for the carbon-arc lam. Hourly readings are also taken of the room tempe- ture. The problem of unit of dosage has not been t satisfactorily solved on account of the numer(s physical difficulties, but I am convinced that un this is accomplished the treatment is largely empiric. Pigmentation is not looked upon as curative in its but merely as an indication that a patient has develop a response to the stimuli and has more readily adapt himself to the call made upon his organism. Te pigmented patient is able to stand a heavier dose f radiant energy, and this is beneficial to his conditi. It is a well-known physical fact that a body with a darkened surface can absorb and give out more radi t energy than one with a light surface. The same lv holds good for human beings. A pigmented pati t can keep his tissues in a more equable condition dur g treatment. I do not intend to enter into the t- chemical effect of light on the human body, as e matter is by no means settled. There are may fascinating theories, but they are too conflicting a contentious for the scope of this paper. Diet y is an important factor in the general treatme. Attention has recently been focused upon the impo- ance of giving animal fat in liberal amounts.

Local Treatment.

The local treatment of surgical tuberculosis may e briefly summed up in three main principles: (1) Te site of the active focus must be immobilist. (2) Pressure or weight-bearing must be removl. (3) Any existing deformity must be improved a any other occurring in the joint affected or any ot r joints must be prevented. These principles must e strictly carried out until the disease has beco e arrested. In the early acute stage, rigid immobilisat n combined with all relief from pressure is most essen l in helping to limit the amount of destruction in e joint surfaces and excessive thickening of the synov l membrane.

Later, when the progress of the bone disease s stationary, the probable end-result has to be consider t. There are three main types of end-result in cases f tuberculous arthritis: (1) Practically normal mo- ment. (2) Considerable limitation of movement, e either to extensive bone destruction or abundance f fibrous tissue with greater or lesser amount of jo t derangement. (3) Sound bony ankylosis. There s a stage in all cases at which the methods of treatm t must be modified according to the group into wh the patient will ultimately fall. It is a very interest g and often a difficult decision to make. I am firmly convinced that the worst end-results are those f Group 2 and that most of the relapses occur he- I am of the opinion that in those cases where the ra e of movement in the joint is likely to be less th n 50 per cent. of the normal, one should aim at a sou d ankylosis. In Group 1, after the acute stage s passed, the rigid immobilisation is replaced by n apparatus that allows of a certain amount of moveme t. Prolonged rigid immobilisation, by means of plas r- of-Paris, Thomas's spinal frame, or a Thom s abduction frame, tends to produce ankylosis. Ca s, on the other hand, which are likely to fall i o Groups 2 and 3 should be retained throughout n a rigid immobilising apparatus. The type of appara s employed has a definite influence on the end-res t. It should be a definite aim of the surgeon to forc e and influence the end-result of all cases of disease f a major joint. Cases that could be made to fall i o Group 1 often end in Group 2 because they h e been subjected to over-prolonged rigid immobil r- tion. Similarly, cases that could be made to fall i o Group 3 end in Group 2 because they have not b n subjected to sufficiently prolonged immobilisation.

Heliotherapy and artificial light tend to limit or uce the formation of fibrous tissue. A certain gree of splintage should be maintained in all cases r long periods after the patient has left hospital. cases of secondary infection with fistula formation connexion with disease of the minor joints, I have considerable success with the application of raw ooked pork fat to the sinus. A certain degree of cess has attended the use of quartz rod applicators ached to a mercury-vapour Kromayer lamp to ilar sinuses.

Hyperextension for Kyphosis.

n the treatment of tuberculous disease of the spine hildren there is considerable diversity of opinion the advisability of attempting to correct the hotic deformity. There are three groups: (1) Those maintain that the existing deformity should be wed to remain and who devote all their attention ards the arrest of the disease by fusion. (2) Those advocate masking the deformity by the creation ompensatory curves above and below the kyphosis. Those who direct their attention to arresting the ase and the direct reduction of the existing hosis. I maintain that it is possible and desirable dopt the third line of treatment in all children re the destruction is not too extensive and the osity not too well marked. It is proved beyond ment that pressure upon a tuberculous focus is imental to the resolution of the disease and urable to the continuance of the pathological ess. It follows, therefore, that it is an essential ll treatment to remove this pressure. It is not cient merely to immobilise the patient in the e position; it is necessary also to treat him by erextension of the spine. Those cases where the n has taken place between two or more vertebræ a remaining well-marked kyphosis have the re of gravity alignment of the spine in the erect ure displaced forwards, with the result that the rmity tends to increase until the child reaches t life, unless a spinal support is worn for many s. The same applies to those cases which rely on pensatory curves. In many cases where the bodies e vertebræ have not been entirely destroyed, as n by a lateral skiagram of the spine, and where still exists a nucleus of living calcified bone it is better to hyperextend the spine at the of the disease to allow the bone cells room to iply and calcify. If the intervertebral disc has destroyed, fusion of the vertebræ will still take . By gradually increasing the degree of hyperxion greater freedom is given for growth of the sed vertebræ. There is no constriction or limitaof blood-supply to restrict the development of osteoblasts and fibroblasts that are laid down.

e technique necessary to obtain this is very simple. e beginning of treatment a soft wedge pillow is d underneath the patient, with the base of the e under the highest point of the kyphosis. This placed after a few weeks, when the patient's skin rithstand the pressure, by a padded wooden block the apex of the gibbosity. This in turn is aced in resistant cases by blocks of increasing s, so that the hyperextension of the spine is ily accomplished. Children are strapped to their l boxes in this position. In low lumbar cases highs are also immobilised to prevent flexion spine in this area. After some 15 to 24 months s position, the children are turned to the ventral on with the spine retained in hyperextension eans of a bed-rest for the upper part of the trunk, ibbosity being opposite the lowest point of the h of the mattress. During this period a certain m of movement is allowed, which must be in irection of further extending the spine. This on is sought for the development of the atrophied muscles by means of use and exposure to the nts. It is found extremely difficult, indeed t impossible, to reduce a kyphosis occurring as lt of disease in the upper six dorsal vertebræ, should be attempted in other areas. I have ured the rate of growth that has taken place in the seat of disease compared with the normal vertebræ in the following cases. Many others could be cited.

Case 1. In 5 years ..	Normal	vertebræ have grown.	45 % = 9 %	p.a.
	Diseased		100 % = 20 %	,,
,, 2. In 4 years ..	Normal		45 % = 11 %	,,
	Diseased		75 % = 19 %	,,
,, 3. In 4 years ..	Normal		45 % = 11 %	,,
	Diseased		90 % = 22·5 %	,,
,, 4. In 3 years ..	Normal		20 % = 6·7 %	,,
	Diseased		45 % = 15 %	,,

It will be seen, therefore, that the rate of growth in the diseased vertebræ is approximately twice that of the normal vertebræ.

A lateral view of the spine demonstrates the reconstruction of the bone into a quadrilateral-shaped mass instead of the wedge-shaped mass that is usually seen after other methods of treatment. The position of the gravity-centre of the spine is replaced to its proper position in the erect posture. When all activity of disease has ceased, as shown clinically and radiologically, the child is allowed to walk about in a celluloid spinal support. The cast for the celluloid cuirass is taken with the spine in hyperextension. The position of hyperextension is maintained by means of such an apparatus for a varying period up to two and three years. This demands expert aftercare of the patient after he leaves the hospital. This should be carried out by the same surgeon who has supervised the in-patient treatment.

Clinical and Laboratory Notes.

ANOTHER CASE OF FOREIGN BODY INADVERTENTLY SWALLOWED.

BY W. J. E. LUPTON, O.B.E., M.B. OXF.

Dr. S. F. Allison's report in THE LANCET of Nov. 5th of the case of Foreign Body Inadvertently Swallowed recalls the following case which occurred recently in Oxford. A school-boy of 11 to 12 years of age introduced into his stomach a length of wire with sharp, penetrating ends. In Dr. Allison's patient the foreign body passed along the whole length of the alimentary canal without catching or penetrating, but in this case the wire pierced the stomach wall and protruded into the peritoneal cavity, causing death.

On Oct. 4th, 1927 (Tuesday), I was called to see a boy who had "pains in his stomach"; I saw him between 11.30 A.M. and noon. He was an orphan, and had lived since August last with an aunt and uncle; the aunt stated that he had first complained of pain on the previous Friday; the pain was then in about the middle line of the body high up in the abdomen; he had, however, attended school that day as usual. On the Saturday he still complained of pain, but located it more over to the right side; he was up and about that day and took his food well. On the Sunday, as he was no better, the aunt dosed him with salts, and the bowels acted freely; he now had pain down the right side of the abdomen, which was sharp and stabbing at times; on the Monday the pain down the right side was bad, and aggravated by movement. So far as the aunt was aware the boy had had no food outside their ordinary diet; he had not felt sick or vomited, and his appetite had been good. There was no suggestion made then or at any time, either by the boy himself or by any relative, that he had swallowed a foreign body.

On examination the temperature was 99·7° F., pulse 96, respirations 24; the tongue was thickly furred; the upper right rectus muscle was rigid, definitely on guard; there was tenderness on pressure and hyperæsthesia to pin-prick on the right side, from the costal margin downwards towards the groin, and more evident near the costal margin. There was, however, no definite tenderness, even on deep pressure, over McBurney's point or the cæcal area, while the abdomen appeared to move normally on respiration. The spleen was not palpable, and there were no physical signs of any liver or gall-bladder involvement; rotation of the hip-joint and flexion of the thigh on the abdomen elicited wincing, and examination per rectum gave some tenderness on the right side. The indication was an inflamed appendix of an aberrant—e.g., retrocæcal—type.

When seen again with Dr. H. A. Robertson between 8.30 and 9 P.M. the boy's temperature was 100·4° F., and pulse-rate 104, and he looked more definitely toxic. He was removed to the Radcliffe Infirmary and County Hospital, Oxford, and was operated on there the same night (Tuesday), within an hour or two of admission, by Mr. H. A. B. Whitelocke. The appendix was found normally placed, elongated, but not obviously inflamed; it was removed, and the incision was closed in the usual way. A right upper paramedian incision revealed a piece of wire, some 2 inches in length, protruding from the pyloric end of the stomach into a round, fibrinous, ulcerous mass of omental tissue, some 2 inches in diameter. The wire was drawn out, the area cleaned of a small quantity of pus, and a drainage-tube inserted. The boy stood the operation well and passed a good night. Next morning he was mentally alert, and stated that he had no remembrance of ever having swallowed any wire. He was, however, somewhat cyanosed and dyspnœic; this dyspnœa increased towards evening, his condition became bad, and he expired rather suddenly almost exactly 24 hours after the operation.

At the autopsy made by Dr. A. Gibson, physician and pathologist to the hospital, a small ulcer was found in the stomach wall just proximal to the pylorus; on the other side of the stomach wall w a hæmorrhagic-looking fibrinous mass, on the wh soft to the touch, situated on and in folds of t omentum. Death was apparently due to gene peritonitis. From the appearance of the fibrin mass, which was recent-looking and unorganis Dr. Gibson suggested that the wire had been in s for some eight or ten days before the operati Examination of the body at the post-mortem revea no avenue by which the wire might have found way into the stomach other than the mouth. apparently worked its way very gradually throu the stomach wall. The wire was about the ga of thick nasal snare wire, and was not eroded.

The relatives are unable to account for the wi they have no wireless set in their house, nor a other apparatus involving the use of wire.

My grateful acknowledgments are due to Gibson and Mr. Whitelocke, of the Radcliffe Infirm and County Hospital, Oxford, for their generous h with these notes and permission to record this c

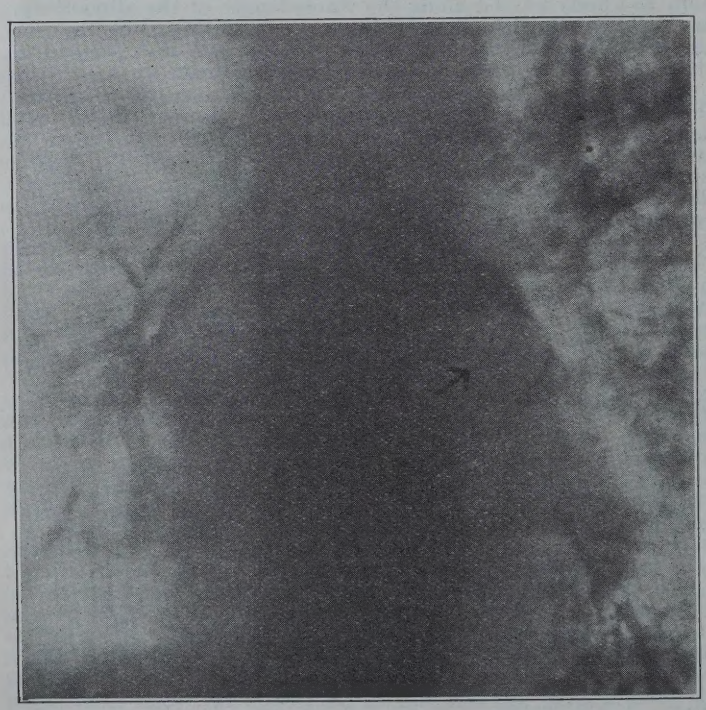
A CASE OF FIBROMA OF THE BRONCHUS.

BY L. S. T. BURRELL, M.D. CAMB., F.R.C.P. LOND.,
PHYSICIAN TO THE ROYAL FREE HOSPITAL AND TO THE BROMPTON HOSPITAL FOR CONSUMPTION;
AND
R. R. TRAIL, M.D. ABERD.,
MEDICAL SUPERINTENDENT, KING EDWARD VII. SANATORIUM, MIDHURST.

A FIBROMA of the bronchus leading to severe hæmoptysis is very uncommon, and we think that the description of a case may be of interest.

The patient, a lady of 23, had hæmoptysis in May, 1925 and again in June and October. Apart from these attack she was perfectly well. She was sent to Midhurst Sanatorium, and there she had another large hæmoptysis in May, 1926, and was in bed for 18 weeks with practically continuous hæmoptysis.

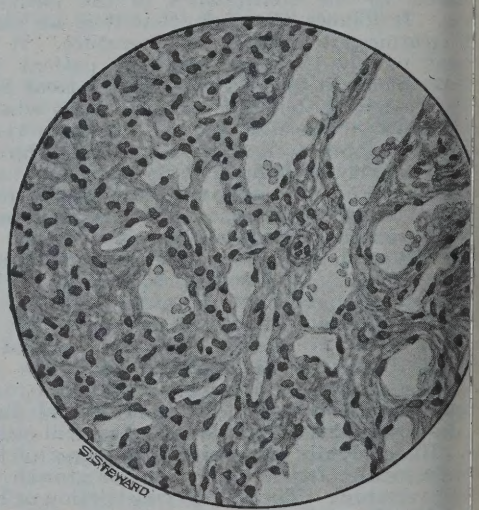
FIG. 1.



Radiogram showing right and left bronchi and the position of the tumour.

There was very little sputum and tubercle bacilli w never found. Breath sounds were a little weak in the f middle zone, and movement was quite definitely diminis

FIG. 2.



Structure of the fibroma (about × 200).

over the left lower lobe, but there was no ness and no adventitious sounds were h X ray showed nothing abnormal in the chest

It was thought that she might be a ca bronchiectasis of the type described as "f sèche hémoptoïque," and some lipiodol injected through the cricothyroid memb The X ray examination by Dr. Stanley Me showed very clearly that a large bronchus blocked (Fig. 1).

Mr. V. E. Negus then examined her w bronchoscope, and reported that there w smooth, solid new formation in the top o left lower lobe bronchus, filling up the lu It was attached to the wall of the bronchu bled slightly when touched. On Dec. 9th, he removed the growth through a broncho by nibbling it away in about six pieces w long, cupped forceps. The growth proved t fibroma, and a section is shown in Fig. 2. S quent examination with the bronchoscope sh the left lower lobe to be free from remains fibroma. The after-progress was uneventfu the recovery apparently complete.

Medical Societies.

MEDICAL SOCIETY OF LONDON.

ATE RESULTS OF OPERATION FOR CARCINOMA OF THE BREAST.

AT a meeting of this Society, held on Nov. 28th, r. HERBERT CARSON, the President, occupying the air, a report was presented by the committee pointed in July, 1923, to investigate the after-results operations for cancer of the breast. The members of e committee were Sir James Berry, Mr. Warren Low, r. Percy Sargent, Mr. Carson, and Mr. T. P. Legg. ıe scope of their inquiry was limited to the tracing d investigation of patients for whom the preliminary eration was performed not less than ten years eviously. Inquiry forms were sent out to surgeons ached to various hospitals in the British Isles, d from the replies received 265 cases were analysed d tabulated by Mr. W. E. Tanner.

Summary of the Report.

Of the 265 patients: (1) 195 (73·6 per cent.) were ve and well, with no signs of recurrence, at intervals m 10 to 34 years after the primary operation. Ten patients (3·8 per cent.) were alive and well intervals of 10 to 26 years after the primary eration, but had undergone an operation for cinoma of the other breast. In one of these more n 10 years had elapsed since the second operation; the other nine the interval was less than 10 years. Four patients (1·5 per cent.) had operations for cinoma in other parts of the body—the rectum, vic colon, and cervix uteri. (4) Ten patients (3 per cent.) were alive and well at periods from to 21 years after the primary operation, but had l one or more operations for recurrence. (5) Fifteen ients (5·7 per cent.) were alive from 10 to 24 years r the primary operation, but had evidences of urrence. (6) Twenty-one patients (7·9 per cent.) l with recurrence more than 10 years after the nary operation, at intervals of 10 to 25 years. Ten patients (3·8 per cent.) died more than 10 years r the primary operation at intervals of 10–32 years, hout signs of carcinoma. These cases were carefully stinised to exclude carcinoma as the cause of death.

Of the 265 patients who were alive more than years after the primary operation, recurrences eared in 46 (17·4 per cent.). These 46 patients into two groups:—

(a) Ten were alive, with no signs of cancer, but had an operation for recurrence. It is interesting notice that these recurrences were all local, with exception of one, in which the recurrence was he skin over the lumbar spine. Three of these rrences occurred within one year, three between and two years, two between two and three years, between five and six years, and one 14 years r the primary operation.

It would appear that operations for local recurrences be very satisfactory, and may be followed by periods of freedom from the disease, if not by al cure. They are, therefore, well worth undering whenever it is possible to remove the recurrence ly and widely.

(b) Fifteen were alive with signs of recurrence of cer, and 21 died of recurrence of cancer more than years after the primary operation. The site of rrence was as follows:—

Site of Recurrence.

l only	16	Supraclavicular	6
l and mediastinal ..	1	Mediastinal and supra-clavicular ..	1
l, mediastinal, and abominal	1	In soft tissues of thigh ..	1
l and spinal	1	Site unknown	1
astinal	3		—
ominal..	3		36
ary	2		

In nine of these patients the recurrence appeared lly within 10 years of the primary operation, and in seven between 10 and 25 years. In the six patients with supraclavicular recurrence, this occurred in two patients within one year; in three the recurrence followed between 9 and 10 years, and in one patient 24 years after the primary operation. In another patient involvement of the supraclavicular glands and mediastinum occurred 10 years after the primary operation.

The question of removal of supraclavicular glands as a part of the primary operation is still undecided. Of 11 patients in whom these glands were removed 10 remained well from 11 to 14 years; the remaining one was alive with metastases in the liver and peritoneum 13 years after the primary operation. It should be noted, however, that in none of the 11 were cancerous glands present at the time of the operation above the clavicle. The case is entirely different when the supraclavicular glands are obviously infected. This infection may arise from a direct spread from the axillary glands, or it may be secondary to mediastinal infection. In the latter case operative removal would be unavailing; in the former it is doubtful if operation ever removes the whole of the disease, which may have spread into the mediastinum from these supraclavicular glands.

In one patient the local and mediastinal recurrence took place 10 years after the operation; in the patient with local, mediastinal, and abdominal recurrence the interval was 14 years; in the patient with local and spinal recurrence 12 years. In the patients with mediastinal recurrence only, in two the disease appeared in 10 years and in the other in 18 years after the operation. The abdominal recurrences took place 1, 8, and 12 years after the operation. The axillary recurrences followed 3 and 13 years, and a recurrence in the soft tissues of the thigh 11 years after the primary operation.

Summarising groups (*a*) and (*b*), in 25 patients the recurrence was local—i.e., in the area of the primary operation. In 17 of these patients the recurrence appeared within 10 years; in 6 patients it occurred between 10 and 15 years; and in 2 patients between 20 and 25 years. The details are more clearly set out in the following table:—

Time of Recurrence.

	Patients.		Patients.
0–1 year ..	.. 7	10–11 years	.. 2
1–2 years ..	.. 3	11–12 ,, ..	.. 5
2–3 ,, ..	.. 3	12–13 ,, ..	.. 1
3–4 ,, ..	.. 1	13–14 ,, ..	.. 3
4–5 ,, ..	.. 1	17–18 ,, ..	.. 1
5–6 ,, ..	.. 2	21–22 ,, ..	.. 1
6–7 ,, ..	.. 1	23–24 ,, ..	.. 1
7–8 ,, ..	.. 2	24–25 ,, ..	.. 1
8–9 ,, ..	.. 1		—
9–10 ,, ..	.. 8		46
Less than 10 years	2		

Looking at this table, a striking feature is the small number—four patients (8·6 per cent.)—with recurrence after 14 years. The figures perhaps are too small to draw any wide generalisation from them, especially as in some of the years nearer the date of the primary operation only one recurrence in any year is shown in the table.

The critical times after the operation would appear to be the first three years; there were 13 patients (28 per cent.) in whom recurrences took place in these years; and between 9 and 10 years, when there were 10 patients (22 per cent.) in whom the recurrence occurred; and again between 10 and 14 years, when recurrence happened in 11 patients (24 per cent.).

The committee had hoped to draw some definite inferences with regard to prognosis from the situation of the growth in the breast. The figures and tables do not enable them to make any dogmatic statement. They think, however, the order of prognosis in a descending scale is as follows: (1) lower half of the breast; (2) outer half of the breast; (3) upper half of the breast; (4) central; and (5) inner half of the breast. Excluding central tumours, the lower and outer half of the breast is the most favourable, and the two inner quadrants the least favourable.

"We should like to reiterate the statement," the committee conclude, "that the prognosis in young patients is not so hopeless as is generally believed."

Discussion.

After Mr. T. P. LEGG had presented the report, the PRESIDENT said that the Committee regretted they had been unable to find one common causative factor in recurrences; they had been much cheered, however, by the success attending the treatment of local recurrences.

Mr. W. E. MILES, speaking from 28 years' experience of cancer of the breast, said that when he was appointed assistant surgeon at the Cancer Hospital the operation he performed was considered a bold one—viz., removal of the breast and subjacent pectoral fascia, with a thorough clearance of the axilla. In several cases small recurrences were noted in the neighbourhood of the scar, showing that removal of the skin had been inadequate. Also there was an extension along the upper border of the latissimus dorsi fairly constantly. When the more extended Halsted operation was done it was found to prevent much recurrence in the extra-thoracic lymphatic areas. Patients differed widely in the degree to which their tissues were invaded by cancer cells, and resistance by the patient played a great part in the ultimate success. Mr. Miles did not consider that the end-results were better to-day, after the routine adoption of larger operations, than in earlier days after the more restricted ones. Discussing technique, he said that occasionally metastases occurred in the supraclavicular glands, and he concluded there was a portion of tissue lying between the apex of the axilla and the supraclavicular fossa which could not be dealt with by dissection of the supraclavicular fossa alone. He had therefore conceived the idea of removing the clavicle, and had found that this gave an excellent exposure of the whole area. There was much luck in operations for cancer of the breast.

At the Cancer Hospital, Mr. Miles declared, he had never seen a case of cancer of the breast which had been cured by X rays. But it seemed reasonable that after excision of the growth, and after an interval long enough to prevent the X rays causing pain in the wound, the site of operation should be exposed to the rays so as to destroy isolated cancer cells which had not been removed. Therefore he had made a practice of sending his post-operation cases to the electro-therapeutic department, but he had been amazed to find that recurrence after use of X rays in this way was earlier and more rapid than in cases treated by surgery alone. Again, he had never seen a case of cancer of the breast which he could say had been cured by radium. In some cases a shrinkage seemed to have followed the use of radium, but afterwards the distant metastases seemed to flourish even more than they would otherwise have done. He did not think sufficient time had yet elapsed to form an opinion about the value of Mr. Sampson Handley's use of diathermy for removal of the breast. But the idea did not appeal to him, because he did not see how a momentary application of diathermy would have any effect on the deeper-seated extensions of the disease. As only 15 per cent. of the cases of mammary cancer treated at the Cancer Hospital had been alive after ten years there was not yet much to be proud of, and at present the relief of about one patient in six was all that could be hoped for.

Mr. W. SAMPSON HANDLEY considered that the Committee had performed an important public service in compiling, and especially in hall-marking, a substantial number of cases at various periods after operations for cancer of the breast, because there was deeply rooted in public and professional thought an idea that cancer was incurable, an unreasoning pessimism which was largely responsible for the difficulties of surgeons. The attitude of the public when a lump appeared in the breast, too often seemed to be: If it is not cancer there is no hurry; if it is, there is no hope. A large number of private cases of his own showed that the average period of delay before seeking advice after a swelling was noticed w six months. The report was a necessary antidote the too prevalent pessimism about cancer, and it w to be hoped that one result was that patients wou seek advice much earlier. If operation was carri out before axillary glands were affected four out every five patients would remain well for a number years. He thought that it was possible to tell recurrence in the opposite breast from a new develo ment of cancer in it. If the lump in the opposi breast was a recurrence hard glands were alwa present in the opposite axilla, and were evident bef the lump appeared; whereas if the lump in t opposite breast was a new cancer, it would be detect before any axillary glands were palpable. He w glad the report paid attention to persistence of tre ment in cases of local recurrence; too many were a to give up when recurrence took place after the fi operation. And the report disposed of the contenti that permanent cure was impossible if a prelimina "incomplete" operation was performed. The d crepancies existing in the descriptions of the differe people whose work entered into the report showed t need, he thought, for the formation of a standa histological collection of new growths; it al showed the necessity of maintaining a supply competent histologists and the provision of prop dignified appointments—to attract able men associated with histological study. He did not dou the prophylactic value of radium in the right pla at the time of the operation. For seven years he h used it along the internal mammary chain, and at t lower and inner angle of the posterior triang. Since he did that his private results had improv 90 per cent.; indeed, it was almost unknown a recurrence to have taken place in the regions th protected by radium. Unlike Mr. Miles, he thoug the results of operation for mammary cancer wer matter of education of the public, not of lu. Diathermy possessed great advantages, and thou it could not be pretended that it could deal with de deposits, prevented the implantation of cancer cells the wound surface. It also minimised shock, a on the whole, he felt it was a definite improvem on the knife. Healing was just as good.

Mr. A. J. WALTON showed tables of results in s own clinic. He regarded them as far from satisfact and suggested that those who spoke hopefully of th cases would be more pessimistic if they had a go follow-up agency at work. He did not like to ap X rays as a routine treatment, but in attack secondaries their effect had been marvellous, thou these results might prove to be only fleeting.

Mr. JOCELYN SWAN gave figures from his practi at the Cancer Hospital. Of 478 patients with can of the breast 64 were alive and well ten years af operation. In his earlier work he had removed supraclavicular glands in many cases; he did n remove the whole clavicle, but divided it, stretched two segments apart, and took away the tissue betw the axilla and the supraclavicular area. Not one the patients thus treated had lived ten years, a he concluded that if a patient had palpable sup clavicular glands, no radical operation was practica Another conclusion he had formed was that in m cases in which the supraclavicular glands w involved the line of spread was not direct from axilla to these glands, but via the internal mamm group, passing upwards into the neck. He conside that when cancer appeared also in the opposite bre it was nearly always a separate disease, not a rec rence in another site; he had seen different mic scopical structures in the two breasts in such a ca He agreed with what Mr. Miles said about the res of using X rays and radium.

Dr. STANLEY WYARD expressed the hope that t discussion on the report would not see the end of it should be published for the information and guida of a much wider circle.

Mr. DUNCAN FITZWILLIAMS said that when a patient came for operation for cancer of the bre the surgeon did not know whether or not it was in

e chest. If it was inside that person would die of rcinoma, whatever operation might be performed. feature of the report was the number of cases in iich a local operation had been done, and at a later ge—sometimes as long as two years afterwards—a lical operation had been performed. Thirty years o Sheilds had produced tables of cases extending ny years back and had shown that many patients vived after only a small local operation. Some ars ago Mr. Fitzwilliams had operated on a very vous patient, and had promised her he would do y one operation ; he believed her to have mastitis. had found, however, that the breast contained a lule of carcinoma and he had left her with much xiety. That was four years ago and she had had hing else done ; she was still well. In operating cases of chronic mastitis he had found 20 in which re was a carcinomatous nodule, but only three of m had been lost, one as the result of an accident. did not believe infection took place from gland to nd, but from primary growth to successive glands. had had breasts X rayed before operation and ayed after operation, but he could not say he had n good come of it, nor had he seen the bad sequelæ n the rays that some speakers referred to. He had greatest respect for radium, but it must not be d in conjunction with the operation, as it would ay healing, and might cause a bad and stubborn n.

Mr. V. WARREN LOW said that the committee had sen ten years as the period after which cure seemed ave been effected because a less period was not so for generalisation. If the period were extended to or 20 years this would bring the patients to a stage which they were liable to die of anything, cancer g a disease of middle and late middle life.

Mr. ZACHARY COPE raised the question of how ny cases would have survived without operation. cer was either long-lived or short-lived, as were ple. When the natural incidence of death was en into consideration the report was more favour- than it appeared to be on the surface. And as s recurred after 20 years could it be said that er was ever cured ?

Mr. DONALD ARMOUR said that when Mr. Miles ared that surgery had done but little for these cases ould not have sufficiently considered what these ents suffered from their disease in pre-operative s. A very important matter was the resistance of individual to the cancer cell ; another was the ver to the question " How long have you noticed mp ?" The West London Hospital had been the to take up the Erlangen treatment for carcinoma e breast, and the report issued, based on the work he entire staff, had stated that no case could be ten down as either improved or cured by X ray ment.

Mr. W. E. TANNER proposed a cordial vote of thanks he Committee for their labours, and this was ed with acclamation.

ITCHELL BANKS MEMORIAL LECTURE.

r BERKELEY MOYNIHAN delivered this lecture he University of Liverpool on Nov. 24th, his ect being

The Gall-bladder and its Infections.

r speaking of the functions of the gall-bladder, activity of its mucosa in concentrating bile, and ethods of emptying, he declared that whatever bject of these processes it was probable that the important functions of the gall-bladder were ected with the alimentary canal. He briefly issed the subject of primary infections in order evote himself fully to the origins, channels of oach, and local results of secondary infections. n instance of infection by way of the blood, ferred to typhoid septicæmia, with its consequent ucous focus of inflammation and later involvement of the interior of the organ. As regards lymph-borne infection, he laid stress on the frequency with which a pre-existing hepatitis was found, from which apparently a lymphangitis spread to the outer layers of the gall-bladder ; thence inflammatory products and destructive changes could be traced through the muscular coats into the submucous tissues. Infection of the mucosa followed, and the fully developed stage of the disease was reached. He believed that this was the commonest channel of infection. Ascending biliary infection had been derided, but he had found in three of his cases a minute piece of metallic copper, in another a tiny ball of thread, in the core of gall-stones where no direct communication existed with the bowel. This must be taken to confirm the work of C. J. Bond, of Leicester. If organisms were to make their way up from the duodenum, of necessity changes must have taken place in the reaction of this part of the alimentary canal, normally sterile. This assumption was strengthened by the discovery that 22 per cent. of patients with gall-stones had complete achlorhydria. No doubt in other instances infection descended from the liver in the bile. This, of course, presupposed the existence of a septic focus somewhere in the portal tract, often in the appendix. There was, however, another part of the portal venous system which must be kept in mind. In certain conditions of the blood the spleen discharged enormous quantities of bilirubin-calcium into the portal vein, and this seemed to be excreted in the bile ; at least bilirubin calcium was found forming the core of quite a number of calculi. It might be that in the future it would be necessary to deal with the spleen in order to cut off the supply of this calculogenic material. In cases in which the trouble seemed to originate in the mucous membrane, cholesterol was deposited in enormous amounts in the mucous and submucous tissues. A polypoid condition developed, and when the pedicle ruptured, as it very easily might, a foreign body was set free, round which further cholesterol was soon deposited. He believed that calcium was deposited only after the erosion of the mucosa at the site of impaction of a stone or for other reasons, and was evidence of further infection.

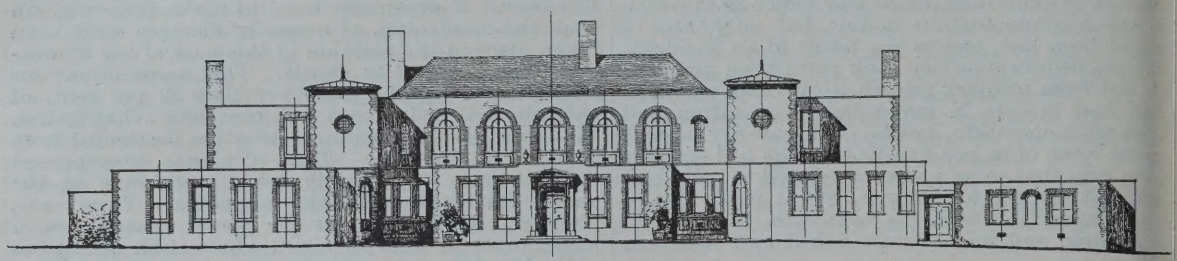
A series of microscopical slides was shown, illustrating primarily the lymphatic origin of cholecystitis secondary to hepatitis. Among important observations mentioned were the thickening of the nerve-fibres in the subserosa, suggesting the histology of " stump neuromata," and the complete absence of polymorphs among the exfoliated columnar cells in most cases of the disease. Case after case was described in which radiography of the excised gall-bladder and its contained stones had demonstrated their structure and composition. In conclusion the lecturer pointed out the value of the negative result in the Graham technique of radiographic investigation, and said that in many cases of cholecystitis the naked-eye changes in the gall-bladder were hard to appreciate. Knowledge of these facts, and a careful study of clinical histories, would, he hoped, make it possible to bring cholelithiasis into the category of preventable diseases.

ABERDEEN MEDICO-CHIRURGICAL SOCIETY.—At a meeting of this society held on Nov. 24th the following office-bearers were appointed : President, Dr. Thomas Fraser ; Vice-President, Prof. Alex. Low ; treasurer, Dr. Robert Richards ; secretary, Dr. Harold Edgar Smith ; editor of transactions, Mr. George Herbert Colt ; librarian, Dr. Middleton Connon ; assistant secretary, Dr. John Craig ; recording secretary, Mr. Andrew Fowler. Members of Council : Dr. William Brown, Dr. John F. Christie, Dr. James Crombie, Mr. Andrew Fowler, Mr. Alexander Mitchell, Dr. Henry Peterkin, Dr. George Rose, Dr. James A. Stephen, and Dr. George Williamson.

NORTHERN INFIRMARY, INVERNESS.—Mrs. Mackintosh of Mackintosh last week cut the first sod in preparation for the extension and reconstruction of the Northern Infirmary, which is to cost £100,000. Over £70,000 has been raised in two years.

EPSOM COLLEGE SANATORIUM.

THE Sanatorium has been designed as a two-storey building of red brick, with quoins and window dressings of red brick of a richer colour. The central portion will have a sloping roof, the remainder of the building having flat roofs covered with asphalt. All the wards will face south and ample provision is made for wheeling the beds into the open air. Low-pressure central heating by means of radiators will be used throughout the building, independent boilers being provided for the domestic hot water-supply. The wards in addition to radiators will have open fireplaces.



ELEVATION TO COLLEGE ROAD

Electric lighting will be installed and cooking will be by gas. The floors of the wards will be of battleship linoleum laid on a cement screed and laid flush with a coved border and skirting in cement, while the corridor floors will be of asphalt laid in a similar manner. Gauged plaster, with a final coat of "sirapite" or similar patent plaster will be used throughout the building.

The boilers for the central heating and domestic hot water-supply and the disinfector for clothing and bedding will be placed in the basement below the kitchen wing. Food for both isolation and non-infectious wards will be supplied from the main kitchen, a diet lift being installed to the first-floor wards.

The building has its long axis running east and west with a centrally placed main entrance on the north side opening into a hall. To the right of the hall is the nurses' dining-room and beyond this the kitchen wing, with servants' hall, and quarters for a married couple to act as cook and porter.

To the left of the entrance hall is a simply equipped operation room and beyond this again the out-patient wing, approached either from the corridor or by a separate outside entrance, through which stretcher cases can be wheeled direct to the wards. Rooms for the medical officer and matron, waiting, casualty, and X ray and massage rooms, are conveniently arranged. At either end of the main corridor a 16-bed ward projects south, forming with duty room, bath-room, sanitary annexe, and nurse's bedroom a complete unit. Separating these ward units and opening direct into the main corridor are four single-bed wards and a dining- and recreation-room, and so forming three sides of a square, the fourth or south side being ope The large 16-bed ward at the east end of t corridor is an isolation ward shut off by doub doors from the rest of the sanatorium and which the only access for patients is by a separa external door. All the other wards on the grou floors with a total of 20 beds are reserved for no infectious cases.

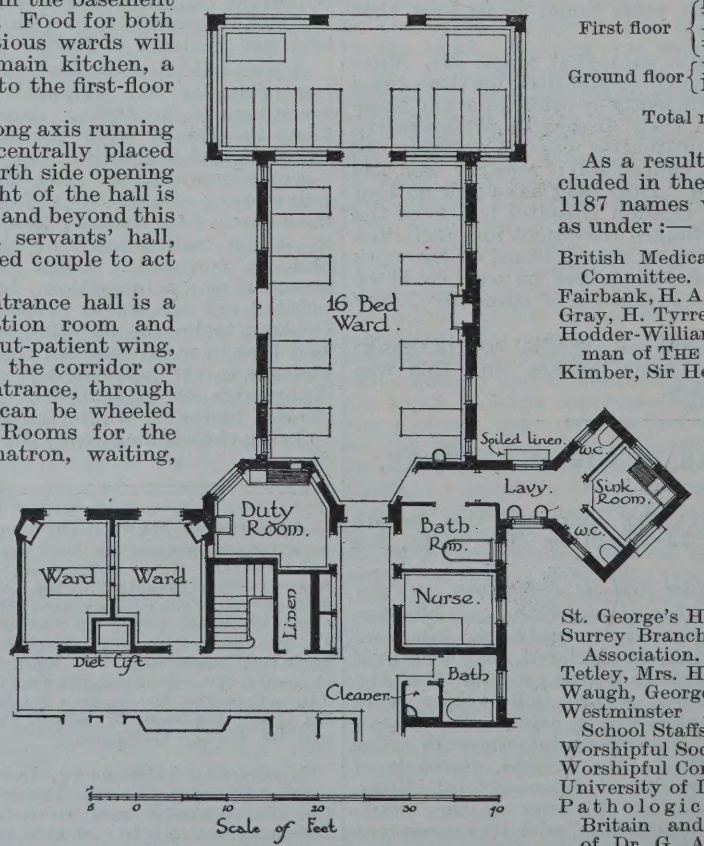
The first floor is approached by two staircas one opening out of the ground floor corridor the west end leads to the staff bedrooms, whi the other leads from the lobby of the isolati ward to the first floor wards, consisting of one eig bed ward, one four-bed ward, two single-bed war and a small dining-room, making with the 16 be on the ground floor a total of 30 beds for infecti cases.

Schedule of Bed Accommodation.

Sanatorium	Ground floor, west wing	.. ..	16
	,, ,, south ,,	.. ..	4
Isolation	Ground floor, east wing	.. .. ..	16
	First ,,	.. .. ..	14
Total number of beds		.. .. ..	

Schedule of Staff Accommodation

First floor	Matron	.. ..
	West wing nurses	..
	East ,, ,,	..
	West ,, (domestics)	
Ground floor	Nurses	.. ..
	Married couples	..
Total number of beds		.. 1



DETAILED PLAN OF A NON-INFECTIOUS WARD.

As a result of contributions i- cluded in the list on pp. 1186 d 1187 names will be given to b s as under :—

British Medical Association Char es Committee.
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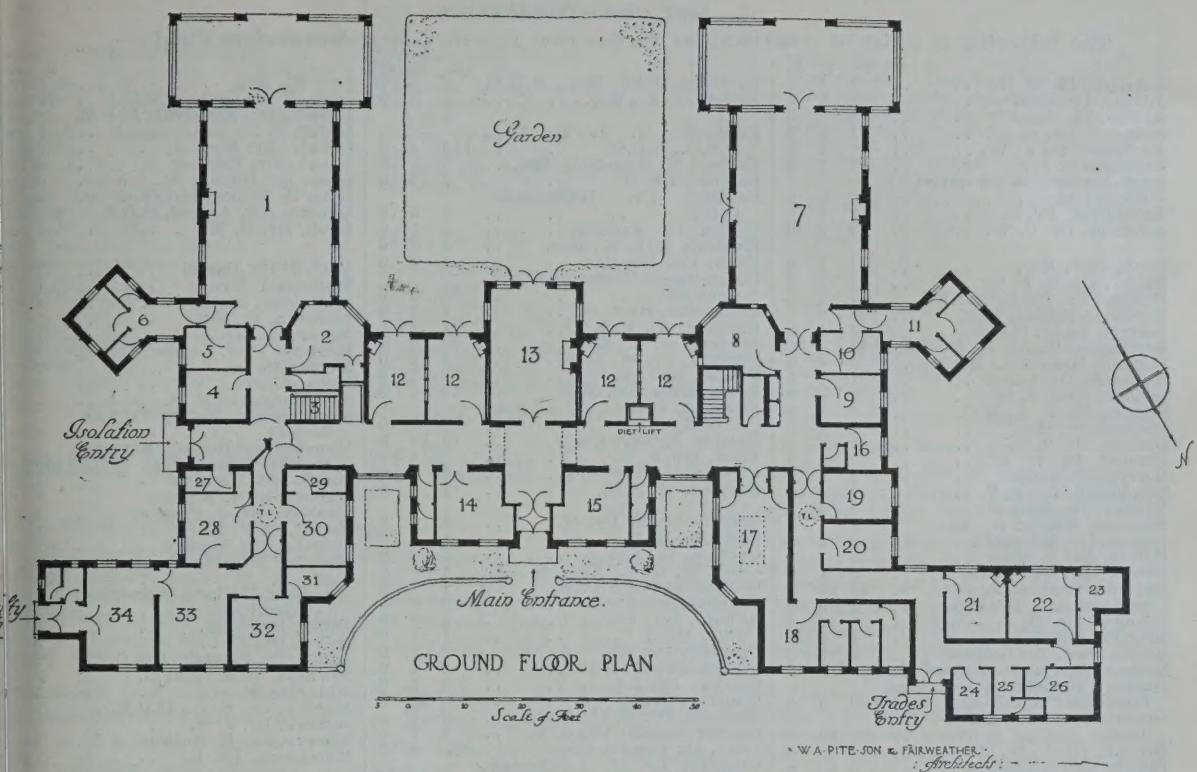
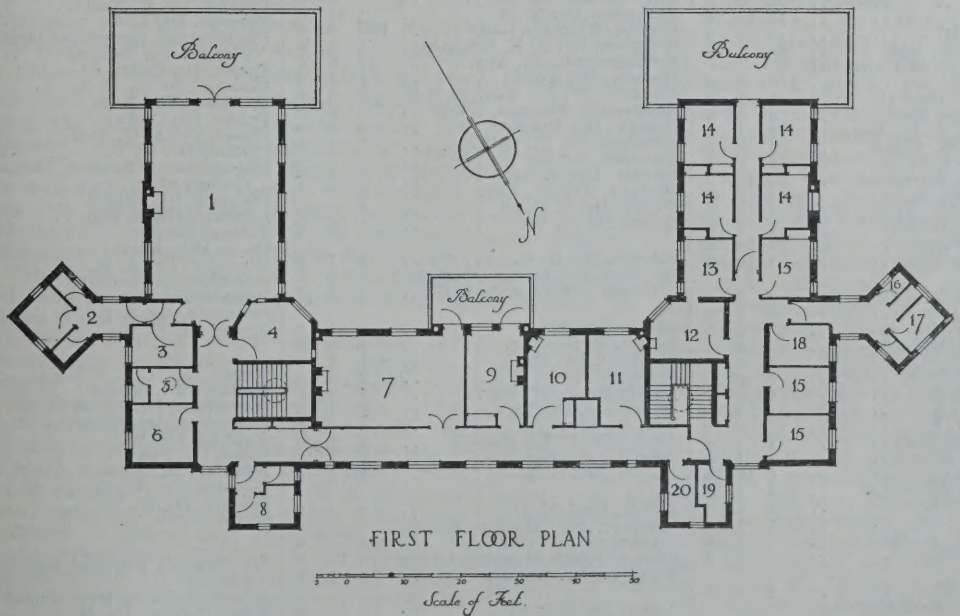


ation.—1. Ward and solarium (16 beds). 2. Duty room. 3. Staircase to first floor, isolation wing. 4. Nurse. 5. Bath-room. 6. Sanitary annexe (lavatory, sink-room, w.c.'s, and soiled linen).
atorium.—7. Ward and solarium (16 beds). 8. Duty room. 9. Nurse. 10. Bath. 11. Sanitary annexe (lavatory, sink-room, w.c.'s, and soiled linen). 12. Single-bed wards. 13. Dining- and recreation-room. 14. Operation-room (staff lavatory adjoining). 15. Nurses' dining-room (patients' lavatory adjoining). 16. Bath for patients in single-bed wards (cleaner adjoining). 17. Kitchen. 18. Scullery with larders and store adjoining. 19. Linen- and mending-room. 20. Mattress store. 21. Staff dining-room. 22. Married couple's room. 23. Bath-room and w.c. adjoining. 24. Soiled linen. 25. Boots (w.c. adjoining). 26. Wood and coal store. 27. Cleaner for isolation section. 28. Medical officer. 29. X ray dark-room. 30. X ray room. 31. Dispensary. 32. Matron's office. 33. Casualty and dressing-room. 34. Waiting-room with lavatory adjoining.



Isolation.—1. Ward of eight beds. 2. Sanitary annexe (sink-room, w.c., lavatory, and soiled linen). 3. Bath-room. 4. Duty room. 5. Nurses' bath-room and w.c. 6. Nurses' room. 7. Ward of four beds. 8. Sink-room (patients' w.c. adjoining). 9. Single-bed ward. 10. Single-bed ward. 11. Dining-room with diet lift adjoining. *Staff.*—12. Matron's sitting-room. 13. Matron's bed-room. 14. Nurses' bed-rooms. 15. Domestics' bed-rooms. 16. Domestics' w.c. and cleaner adjoining. 17. Nurses' bath-room and w.c. adjoining. 18. Domestics' bath-room and lavatory 19. Box-room. 20. Bath-room for small wards.

LIST OF CONTRIBUTIONS.

The following is a list of contributions to the new Epsom College Sanatorium Fund :—

	£	s.	d.
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ly, Dr. R. V.	1	1	0
rigge, Sir Squire	5	0	0
venson, Dr. W. D. H.	1	1	0
wart, Prof. Matthew J.	10	10	0
wart, W. R., Esq.	1	1	0
rey Branch of the British Medical Association	100	0	0
man, Dr. W.	1	1	0
nons, H. W., Esq.	1	1	0
vlor, Dr. A. L.	5	5	0
cher, Prof. J. H.	2	2	0
ley, Mrs.	1000	0	0
akore, Dr. M. D.	1	1	0
Thistlethwaite Dr. W.	1	1	0
Thompson, Mrs.	1	1	0
Thomson, Sir StClair	10	0	0
Thomson-Walker, Sir John, O.B.E.	10	0	0
Topley, Prof. W. W. C.	2	2	0
Tudhope, Dr. G. R.	1	1	0
Tulloch, Dr. W. J., O.B.E.	1	1	0
Turnbull, Prof. H. M.	1	1	0
Veale, Dr. R. A.	1	1	0
Ward, the Executors of the late Miss Ann	500	0	0
Wardill, W. E. M., Esq.	1	1	0
Wardle, Dr. G. Mary	1	1	0
Warnock, Dr. W.	1	1	0
Watterson, Miss Eleanor	1	1	0
Watts, Miss M. A.	1	1	0
Waugh, George E., Esq.	100	0	0
Webb, Dr. R. A.	1	1	0
Westminster Hospital and Medical School, Consulting and Visiting Staffs of	100	0	0
Wheatley, Dr. Bertha	1	1	0
White, Dr. Eva	1	1	0
Whitfield, Dr. Arthur	10	0	0
Willcox, Sir William, K.C.I.E., C.B., C.M.G.	1	1	0
Wills, Miss F. R.	0	10	0
Wilson, G. E., Esq.	1	1	0
Wilson, Dr. G. H.	1	1	0
Wilson, Dr. H.	1	1	0
Wilson, Dr. W. J.	2	2	0
Wolfe, Dr. H.	1	1	0
Wormall, A., Esq.	1	1	0
Yelf, Dr. R. E. B.	0	10	0
Young, Dr. C. J.	1	1	0
Young, Dr. J. S.	1	1	0
Young, Dr. M.	1	1	0

Reviews and Notices of Books.

E COMMON DISEASES OF THE SKIN.

A Handbook for Students and Practitioners. By R. CRANSTON LOW, M.D., M.R.C.P., Lecturer on Diseases of the Skin, University of Edinburgh; and Physician to the Skin Department, Royal Infirmary. London and Edinburgh: Oliver and Boyd. 1927. Pp. 223. 14*s.*

THE scope and composition of this handbook, its se and dogmatic style which has by no means bed it of a certain literary excellence, and, above a valuable and discreet selection of life-like strations and textual figures and diagrams, have bined to produce the most noteworthy contribu- n of its kind in recent years. As might have been ected from the author of "Anaphylaxis and sitisation," the chapters on eczema, urticaria, and eruptions in which sensitisation plays a part, are ticularly interesting, and even the expert will in them certain hints and explanations for which will search many larger text-books in vain. Com- dable, too, are the sections on vesicular and ous eruptions, and the attention of the casual er will be held by such phrases as "all pemphigus s show bullæ, but not all bullous eruptions are phigus." The relationships of herpes zoster and cella, and the ætiology of alopecia areata are ly discussed, some original suggestions being forward. If it should be argued that theory is out place in a handbook, the reader will certainly fit from the occasional lapses that make for rest and save the work from being a catalogue. little diagrams showing the relative dermal and ermal situations of cheloid and hypertrophic s should help to prevent the common error of using these conditions.

reatment is modern in every section and will e a general appeal on the score of simplicity. vas perhaps hardly necessary to describe the il of radiotherapy for ringworm of the scalp, the bulk of dermatological opinion would not e that "if there is only one spot of disease which ar the scalp margin then that spot and a wide around it should be X rayed." If X rays are led upon, epilation should be total. Thallium te treatment, which is not even mentioned by Low, may eventually displace X ray epilation ely. Syphilis and syphilitic eruptions, it should oted, are not dealt with, except in so far as ential diagnosis is concerned.

e book contains 68 illustrations and 49 full-page s, eight of them in colour. These and the ing itself are excellent, and the relatively low should add considerably to the many attractions e book.

PHYSICAL SIGNS IN CLINICAL SURGERY.

By HAMILTON BAILEY, F.R.C.S. Eng., Surgeon, Dudley Road Hospital, Birmingham. Bristol: John Wright and Sons, Ltd. 1927. Pp. 217. 21*s.*

MANY small books in surgery have been written for students beginning clinical work, but none of them is quite of the same character as this. It is a treatise on examination of the patient by palpation, percussion, and other simple clinical ways on the same lines as Prof. F. Lejars's well-known book, only it is smaller and therefore better adapted for the use of junior students. It was time a book of this nature was available in English, and the author is to be congratulated upon the success with which he has carried out his task. A feature of the book is the abundance of illustrations, all of which, in addition to the excellence of reproduction, are informative. The text is usually terse and to the point, and the mnemonic for urinary complaints from "As You Like It," on p. 153—which is simply ingenious without being any aid to the memory—is the only blemish upon a very good and otherwise serious addition to English surgical literature.

THE NORMAL CHEST.

The Normal Chest of the Adult and the Child. By J. A. MYERS, Associate Professor of Medicine, University of Minnesota. In collaboration with S. MARX WHITE, R. E. SCAMMON, A. T. RASMUSSEN, C. A. STEWART, and GEORGE E. FAHR. London: Baillière, Tindall and Cox. 1927. Pp. 419. 22*s.* 6*d.*

A COURSE of study of the normal chest at Minnesota University, begun in 1921, forms the groundwork of this book. A brief account of the anatomy and physiology of the normal chest precedes a really excellent description of the physical examination, while Chapter 8 deals with the importance of systematic scrutiny of this sort. The author repeatedly emphasises the necessity of studying the various physical, X ray, and other signs which may be found in the normal chest, and his view is reasonable that much time should be spent in learning the normal breath-sounds, areas of dullness, and so forth, before the study of disease is undertaken. In the hospitals, students are apt to concentrate on disease, and there is no doubt that the teaching of the normal and the varieties of the normal is much neglected. This book therefore supplies a real want, although for the student overmuch space is given to detail; the last three chapters, for example, deal in 150 pages with the innervation of the chest, developmental anatomy, and acoustics in a way that can only be of interest for the specialist. Chapter 5, contributed by Dr. White, deals with the examination of the heart and great vessels, and Dr. Stewart describes the normal chest in infancy and childhood. Copious references are conveniently arranged at the end of the chapters.

We can thoroughly recommend this book, and shall look forward to volumes dealing with the normal in other systems of the body.

THE ALPINE CLIMATE.

Der heutige Stand der Physiologie des Höhenklimas. By Prof. Dr. LOEWY. Berlin: Julius Springer. Pp. 60.

IN this short account of the present state of alpine physiology the author correlates results obtained by many investigators, among whom he occupies a distinguished place. The first part of the book contains observations on the special factors which distinguish the climate of mountains and high valleys; the second part deals with their effects on physiological processes, especially circulation, respiration, and metabolism. Dr. Loewy analyses the action of the various elements of the solar radiation and confirms the value of natural sunlight as compared with artificial sources of light, although the more the spectrum of the latter approaches that of the sun the greater the similarity of its action. He recalls the work of Sonne, who showed that while a source of ultra-red rays (a heated metal plate) may raise rapidly the skin temperature and cause a sensation of burning, though at a depth of 2 cm. the temperature remains normal, exposure to the sun's rays for half an hour causes much less elevation of surface temperature but a marked rise in the deeper tissues. This he considers to be an important factor in raising the bactericidal power of the blood. The increase of metabolism caused by a sojourn in the mountains he attributes to several factors, but chiefly to the stimulation of the skin by the air and solar rays. Alpine therapy has been well established on an empirical basis, but Dr. Loewy's concise and lucid study is a real contribution to scientific therapy.

Das Strahlungsklima von Arosa. By P. GOETZ. Berlin: Julius Springer. Pp. 110. M.8.70.

THIS monograph contains a mass of data and some interesting speculations on the climate of the Swiss Alps as observed at Arosa. The author refers to the well-known fact that in the Alps the average temperature in winter does not fall with increasing altitude as rapidly as would be expected. An important cause of this phenomenon is the collection of cold air and mist over the lower regions with upward reflection of heat and light waves from the surface of the sea of cloud thus formed. These favourable conditions are accentuated at Arosa owing to its situation on a slope facing south. This gives a higher average winter temperature than would be found at the same altitude at the bottom of a valley. After sunset the slope loses heat by radiation, but the cold air flows down to the bottom of the valley where it forms a pool of very low temperature, its place being taken by a falling evening current of only moderate temperature. Another point of general interest which Dr. Goetz brings out is the ratio of horizontal to vertical light. The former is defined as the amount of light falling on a vertical plane facing south—e.g., a window. In winter the possible duration of sunlight per day is relatively short, but owing to the low level of the sun the horizontal component of it is so much increased that the actual amount of sunshine entering a room is as great in winter as in summer. This surprising result is also due in part to the fact that clouds are more frequent in the summer months. Thus the ratio of overcast days in January, as compared with July, is as 1 to 1·8.

SOUTH AMERICA.

By FRANKLIN H. MARTIN, C.M.G., D.Sc., M.D., LL.D., F.A.C.S. London: Fleming H. Revell Company. 1907. Pp. 435.

Dr. Franklin Martin, the well-known Director-General of the American College of Surgeons, has brought together in this book a valuable mass of information upon the Latin American countries. The notes were made or collected during visits to those countries on behalf of the American College of Surgeons, and they include experiences met with aboard the *Ebro* in a tour which included Jamaica, Panama, Peru, Chile, Argentina, Uruguay, Brazil, Ecuador, and Bolivia. Various sections are a contributed by Dr. A. J. Ochsner, who visited so of the larger cities of Mexico, and Dr. E. I. Salisbu who records experiences in Nicaragua and Cu All the information is directed towards introduci to the medical profession of the rest of the wo the progressive course of their sciences in La America. It is simply given, and profusely illustrat while the rapid development of medicine in some the countries visited, especially those most regard in Europe as backward States, will come as a surpr to many readers. During Dr. Martin's visits to So America and Panama in 1921, 1923, and 1925, personally interviewed the Presidents of Panar Peru, Argentina, Uruguay, and Brazil in regard establishing, presumably in Panama, a memorial William Gorgas. This is to take the form of Institute of Tropical and Preventive Medicine, and President Coolidge, the honorary president of movement, is deeply interested in the scheme, practi outcome will not be delayed.

MENTAL HANDICAPS IN ART.

By THEO. B. HYSLOP, M.D., C.M., F.R.S.E. W a foreword by ARTHUR THOMSON, Professor Anatomy, Royal Academy. London: Baillie Tindall and Cox. 1927. Pp. 98. 3*s.* 6*d.*

WITHIN less than 100 pages this little book conv much æsthetic information, much useful critici and much sound philosophy. The exposition of true aims and objects of art leads up to chapt dealing with the appropriate union of arts and indus and with the right appreciation and employment the artistic faculty. Readers recognising in author a well-known psychologist, as well as accomplished artist, will turn naturally to the c cluding sections on the influence of disease upon and the possible connexion of toxins with arti production. Dr. Hyslop suggests that m hysterical, hyperæsthetic, or supernorm sens anomalies are in reality merely reversions to rem acquirements in evolution. He finds evidence t "what we have lost in instinct we have gaine reason," and appraises some of the most ex ordinary developments of the special senses as reality not instances in advance of the evolutio those special senses, but rather examples of rever to more primitive conditions of biological evoluti Not infrequently, he states, such abnormalities appear when the balance of the internal secret becomes readjusted. And on the often deb question of how far genius and madness are he finds that: "With the formidable array evidence of degeneration in those who are ackn ledged to be geniuses in art, the theory of ge being a disease of the nerves is apt to gain gro but not when we take balance as the test of me health." He warns us that degeneracy is o productive of bad art. A touch of madness serve in some instances to raise the individual a mediocrity, and bad or offensive art is not invari a symptom of degeneracy, for it may be the r of defective education, failures in observation technique, or of imposture. There is much th timely in these words.

Messrs. J. and A. Churchill inform us that the p of Rowlands and Turner's "Operations of Surge reviewed in THE LANCET of Sept. 17th (p. 610 £3 10*s.* for the two volumes.

COÖRDINATION OF BRISTOL HOSPITALS.—It has decided by the council of the Lord Mayor's Hospital and the local Voluntary Hospitals Committee to appo Committee of Inquiry to consider the extension of ac modation, and the best means of preventing overla and securing coördination. There are 15 hospita Bristol with approximately 2100 beds, many of whic doing precisely similar work. Three of them have rec made urgent appeals for help; another is being fin to a substantial extent by the corporation, and two ones are about to be built.

THE LANCET.

LONDON: SATURDAY, DECEMBER 3, 1927.

PSOM COLLEGE: THE NEW SANATORIUM.

WE publish this week the results, as they at present and, of the efforts made by the Council of Epsom ollege for providing the institution with a new and lequate sanatorium. The intention of the Council as made known in these columns and in many other urnals in December last, and the outcome of that reliminary notice has warranted the Council in roceeding to definite plans in respect of site and nstruction. All who know anything of the cost per ed which has to be met in the founding of a modern edical institution will see that the substantial sum ready subscribed bears small relation to the sum hich will have actually to be spent, for thrice that m is needed to warrant a start, and a total far higher ill eventually be required; but it will be remembered at so far the subscriptions have been made largely the dark, for, while the statement of the Council at the new structure was required has been cepted, no one could have known until now exactly e way in which it was proposed to spend the money btained. We hope and believe that, with the detailed ans before them, which by the help of the accomnying descriptions are easy to follow and appreciate, large number of our readers will resolve not only to ke a share in the good work, but to urge upon their tients and friends the righteousness of doing the me. Epsom College possesses public as well as ofessional claims, and the list of subscriptions blished to-day shows that in many directions these ve been finely acknowledged.

The story of Epsom College is one of steady velopment. There is no question of bolstering up institution which is not justifying its existence; ther, pecuniary support is asked because the work ne has been so progressive, and because that work s never proved itself of greater public value than day. Three-quarters of a century ago we find that an early reference to the foundation of the College, prophesied its great future, and the steps in its ogress, as they have been recorded regularly in our umns, have been associated with expenditure by e Council of large sums of money. Epsom has never ted on its laurels, but always, as it obtained success, s prepared for still greater success. In the extension buildings, the provision of needed improvements for e comfort of boys and staff, the erection of laboraies, lecture rooms, common rooms, and chapel finite evidence has been supplied by the authorities their sense of growing responsibilities. The need w is one which should have a particular appeal to dical men, for it is an anomaly that a great public ool, definitely associated with medicine, should be nd behindhand in any arrangements for the medical atment of its charges. Now there is no doubt that e new sanatorium is urgently required. The number beds projected may seem large, but this will not be e opinion of the school authorities, nor of any who ve realised the difficulties which epidemic disease ails upon residential institutions like great boarding ools. The provision for sickness in all our large blic schools, if the tenets of modern medicine are being observed, will always appear prodigal while there is no particular reason for the occupation of the beds; alas, it may often be found too small if the school should be unfortunately visited by an epidemic of any extent or virulence. The Council of Epsom in placing the figure of beds required at 50—30 general and 20 isolation—for an estimated total of about 400 boys, have adopted the accepted view of experts.

The cause of Epsom College has been pleaded so often and so regularly in these columns that anything said now will assuredly have been said before. This does not mean that it should not be said again. The school provides a first-class general training, with amenities for study and for sport that make it comparable to any of its similars in the country. It also supplies a magnificent opportunity for giving these advantages to the children of medical men whose expectations of educating their offspring suitably have been destroyed by death, sickness, or misfortune. The plea for money needs no further justification. It is to be hoped that the present appeal will enable the authorities of the College to proceed at once to develop their far-seeing scheme.

SURVIVAL AFTER OPERATION FOR BREAST CANCER.

THE investigation of disease by a body such as the Medical Society of London is not without precedent, although it is unusual for such a body to overcome successfully the inertia in its make-up. It is with genuine pleasure, therefore, that we welcome the report presented to the Society on Monday last upon the late results of operation for carcinoma of the breast The report is summarised on p. 1181, along with a brief account of the discussion to which it gave rise. To assess the value of an operation in relation to the survival ratio after the lapse of a considerable number of years is never easy. Yet it is obviously of immense importance to find out whether carcinoma of the breast is better treated by the simple operation of local removal or by the severe and mutilating "radical" operation, or whether it would be for the greatest good of the greatest number if no operation were performed at all. Carcinoma of the breast is one of the commonest forms of cancer, and, although it is anatomically one of the most accessible, the results of operation have not seemed to be correspondingly good. If patients are to be persuaded to present themselves for operation at an early stage, an effort must at least be made to prove that operation really is efficacious. It must not be merely a genial faith in the mind of the surgeon. By far the most extensive investigation of the problem that has ever been carried out was done by Dr. JANET LANE-CLAYPON, and was published by the Ministry of Health in 1924.[1] Probably it would be impossible for a voluntary society to gather any comparable mass of data. The committee of the Medical Society of London have pointed out, however, that all investigations hitherto published have, for various good reasons, taken a three-year, or at most a five-year, survival period as the evidence of cure after operation. The committee which drew up the report have endeavoured to strike out in a new line by restricting their investigations to those patients who have survived operation for ten years or more, and of these they have gathered 265 records.

[1] Reports on Public Health and Medical Subjects, Nos. 28 and 32. H.M. Stationery Office, 2s. 6d. and 3s. THE LANCET, 1924, i., 1074.

This deliberate restriction of the field has inevitably resulted in limiting also the value of the investigation. Statistics based on so small a number can contribute little or nothing to the answering of the larger questions which Dr. LANE-CLAYPON has already surveyed from a basis of 20,000 records. Comparative results, in fact, cannot be obtained at all from an arbitrarily selected class such as this, since there are no other categories with which to compare them. The chief value of the work done seems, indeed, to lie in the unequivocal demonstration of the fact that so many records of ten-year survivals can be gathered and can pass the most careful scrutiny. This must necessarily bring encouragement to every woman who finds that she is a sufferer from the disease. Another fact of great interest which has been brought out is that no patient or surgeon need despair, even in the face of recurrence of the growth. No less than ten patients were alive and well from 10 to 21 years after the primary operation, although they had had one or more secondary operations for recurrence. One had even had a recurrence of the growth in the skin over the lumbar spine. The Medical Society of London may therefore be congratulated on having furnished a very real message of hope to those engaged in the war against cancer. They have also provided an example of careful investigation which, it is to be hoped, is but a first instalment and which may be emulated by other bodies of medical men.

MEDICAL CONFIDENCES.

LAST week, with the aid of sponsors from various political parties in the House of Commons, Dr. E. GRAHAM LITTLE introduced the Medical Practitioners' Communications Privilege Bill, which was read a first time. A summary of Dr. LITTLE'S introductory speech was given in our Parliamentary Intelligence (p. 1161). Discussing the Bill in its issue of Nov. 19th, the *Solicitors' Journal* remarks upon the need of foreseeing that the privilege, if granted, shall not be stultified by liability to adverse comment in court when the privilege has been exercised. The point is well taken. Let us suppose that a medical witness is asked a question which involves answering whether the patient was or was not being treated for some form of venereal disease. If the witness replies, "I claim professional privilege and I decline to answer," it is easy to see that such a reply may set up an inference which is tantamount to disclosure. The doctor's professional privilege, observes the *Solicitors' Journal*, if given, should be exercised as a matter of course, and the jury should not be allowed to form an adverse opinion against the patient by reason of its exercise; indeed, it may be argued that a doctor should not waive it even at the request of the patient, for, if this became the practice, those patients who did not make such request would naturally be regarded as having good reason not to do so. It is not in all respects easy to assimilate the professional relationship of doctor and patient with that of solicitor and client. Doctors are called upon every day to give evidence on behalf of their patients—for instance, to estimate the damage caused to the victim of a street accident when some collision in traffic is alleged to be due to the defendant's negligence. If in a libel or slander action the defamation consists of a statement that the plaintiff is suffering from venereal disease, how can he disprove the statement without the evidence of his doctor? Adverse comment is not allowed if a legal adviser claims professional privilege. In Wentworth *v.* Lloyd (1864, 10 H.L.C. 589) objection was taken to the disclosure by a New South Wales solicitor of information which he had obtained in the course of his professional employment. The then Master of the Rolls was inclined to let the objection weigh against the party taking it; he regarded the refusal to allow the answer as a keeping back of evidence equivalent almost to keeping a material witness away from the court. Lord CHELMSFORD protested strongly against this view "so entirely at variance with principle and so utterly in contradiction to the well-known and invariably recognised privilege of professional confidence. . . . A person who refuses to allow his solicitor to violate the confidence of the professional relation cannot be regarded in that odious light." Lord BROUGHAM, it may be recalled, explained the rule of the solicitor's privilege by saying that the course of justice would stop if no such rule existed; "no man would dare to consult a professional adviser with a view to his defence or to the enforcement of his rights." The exclusion of such evidence, said Lord Justice BRETT, is a rule established upon grounds of public and general policy. The medical profession has to base its claim upon the same ground of public interest. It can say with truth that, in the campaign against racial diseases, early recourse to medical advice and treatment is essential, and that public policy demands that no man be discouraged from prompt and confidential consultation with a doctor. Health is hardly a less urgent national need than justice.

EPIDEMIC POLIOMYELITIS: ITS POSSIBLE TRANSMISSION BY MILK.

IN the autumn of 1926 public attention was directed to the problem of acute anterior poliomyelitis, largely because of its sudden occurrence in certain educational communities, and also because of the controversy which then arose as to the propriety of school closure with the object of controlling such outbreaks. It may be well to recapitulate briefly the facts recorded by Dr. A. M. WATT, medical officer of health in one of the districts affected. Until Oct. 14th no notifications of poliomyelitis had been received during 1926, but on that day 13 notifications reached the health department and others followed in rapid succession until Nov. 11th 62 authenticated cases had been notified and information had been obtained of five other patients who sickened elsewhere but acquired the infection in the district—a total of 67 cases. The salient features of the epidemic as they presented themselves to the medical officer of health may conveniently be set out in his own words [1]:—

"(1) That the disease was limited mainly to the children attending private schools in the district, particularly boarding schools; that most of these schools were situated in the northern part of the district, and that the private schools had very little communication with each other.

"(2) That the disease started almost simultaneously in all the schools affected, and that the outbreak ceased almost entirely at the end of a fortnight.

"(3) That the disease did not spread to the adjoining districts.

"(4) That the disease did not spread in the elementary schools."

The unusual character of the epidemic could hardly be better stated; nevertheless, both the loca-

[1] Brit. Med. Jour., 1927, i., 114.

ealth department and the Ministry's officers regarded he behaviour of the disease in this case as con-rming the generally accepted view that transmission ccurs from case to case or through the agency of ealthy carriers. The probable mode of spread is iscussed at some length in the annual report for 926 of the Chief Medical Officer of the Ministry, which 74 cases are recorded as belonging to this idemic. The sudden onset is tentatively explained y postulating a rise in the carrier-rate "until it ached a point at which the virus became actively rulent in a susceptible juvenile population"; nd it is surmised that the sudden ending was due the activity of the preventive measures adopted. n these points our only comment is that such ccess in controlling by administrative methods an utbreak which might be regarded as the boiling er of a simmering pot of carrier-infection strikes as unusual. Since brief but adverse reference as made in that report to the theory that the fection might have been conveyed by milk, it is sirable to direct attention to an article [2] on the utbreak by Dr. W. L. AYCOCK, of Harvard, U.S.A. The epidemiological criteria by which a milk-rne infection may be identified may briefly be ated as follows: (1) epidemiological or bacterio-gical evidence that the disease in question is trans-issible by milk; (2) suddenness of onset; (3) a ilk-supply common to a preponderating majority the earlier cases; (4) the presence of a sufficiently ge community of persons who are not consumers the suspected milk to serve as controls; (5) the sence of any obvious link between the earlier cases her than the milk-supply; (6) an unusual age-stribution of the cases; and (7) the demonstration a source from which the milk might have been ely to be contaminated. It is rare indeed that all ese criteria can be satisfied, generally the last them being the most difficult to meet because of e inevitable delay in prosecuting inquiries of this d. Incidentally it is well to remember that lk epidemics are not always sudden in onset. ey may also occur, and indeed are most liable to ur, when case-to-case infection is rife in any area, that their presence is apt to be masked. The earliest lk-infected cases are rarely the first local cases of e particular disease involved. Dr. AYCOCK, who ited the district to investigate the circumstances the outbreak, refers to previous instances of polio-elitis which he believes to have been milk-borne. ter sifting the information which he obtained, he has ived at the conclusion that the epidemic in question s milk-borne. He has traced 75 cases (the difference tween his and the Ministry's figures from those en by Dr. WATTS no doubt being due to the late covery of some cases, a common feature of out-aks of poliomyelitis), of whom 43 showed definite ralysis, 29 no paralysis, and 3 were doubtfully ralytic. Obviously the diagnosis in the first up must be much more certain than in the others, al special weight is therefore attached to their edemiological history. It is shown that 35 of these ained milk from one dealer, who may be called ler A, while the remaining 8 were on the supply of other, dealer F, who was known to have overcome emporary shortage of milk by purchasing about gallons daily from dealer A during the period when most of the cases must have been infected. The majority of the non-paralytic cases were also among the consumers of these two supplies, but six cases of this type or of doubtful character were not definitely associated with either of them. The importance of these latter exceptions depends on several factors—viz., the order of their occurrence in the epidemic, the finality of the diagnosis, and definite establishment of the fact that they never, even casually, consumed either of the suspected milks during the period in question (for instance, in the form of ice-cream). Apparently some of these points must remain doubtful. Dr. AYCOCK's table setting out the size of the various milk rounds and their connexion with the cases is reproduced here for the sake of clarity.

Dealer.	Daily supply.	Total cases.	Paralysed.	Non-paralytic.	Unknown.
A	1080–1200 quarts.	50	35	14	1
B	1000 quarts.	1	0	1	0
C	250 ,,	1	0	0	1
D	150 ,,	1	0	1	0
E ..	Tinned milk used to considerable extent by poorer classes.	1	0	1	0
F ..	500 quarts. (Purchased an average of 44 quarts daily from A from Sept. 23rd to Oct. 15th).	19	8	11	0
G	200 quarts.	0	0	0	0
H	Small.	0	0	0	0
I	,,	0	0	0	0
Unknown	—	2	0	1	1
Total	—	75	43	29	3

It is important to note that there are serious discrepancies between the Ministry's report and Dr. AYCOCK'S paper in relation to certain salient facts. The former attaches little importance to previous instances of milk-borne poliomyelitis. Further, it states that three dealers were almost entirely responsible for the milk-supply of the district, presumably the two described above as A and F, and a third whose supply was apparently regarded as negligible. If this were so, and if the Ministry's statement that the majority of persons in the area who did not contract poliomyelitis also obtained their milk from the large dealer associated with most of the cases (presumably the one described here and by Dr. AYCOCK as dealer A), then, of course, the milk connexion would be a coincidence. The table, however, which we have reproduced from Dr. AYCOCK's article, indicates that there were other important dairymen in the area, and that, even if most of them operated in a neighbouring detached district, still the immunity of the customers of dealer B, who appears to have delivered milk on a large scale in the affected district, requires to be explained. Again, Dr. AYCOCK and the Ministry both use the term "abortive cases," but the former appears to mean by this term non-paralytic cases, while the latter can hardly use the term in the same sense, since they chart only 8 cases as abortive, although one must infer from Dr. WATTS'S report that 33 of the 62 notified cases were regarded locally as having had no paralytic manifestations. Some of these showed signs of encephalitis. Certain individual cases to which Dr. AYCOCK refers are of special interest. In one school where there were 28 boarders, five boys, by special arrangement, received bottled milk purchased from dealer A by dealer F, and delivered to the school by the latter. The only two cases in the school occurred among these

[2] The American Journal of Hygiene, November, 1927, p. 91.

five boys. Again, four temporary visitors to the district, all staying in different houses, but consuming dealer A's milk, sickened away from the district at or about the same time. Apart from their milk-supply no common link could be discovered, and the fact that the period during which they were all residing in the district covered three days about a fortnight earlier accords with Dr. AYCOCK'S view that the incubation period is long rather than short. On the other hand, the Ministry's report appears to accept the view that the incubation period of poliomyelitis is usually short, and their theory of case-to-case, or carrier-to-case, infection hangs partly on this view. Here, then, is another crucial question that requires settling.

There are weaknesses in Dr. AYCOCK'S chain of evidence, of which the most important is his failure to trace the infection back to any particular producer, either by means of circumstantial evidence or by the discovery of an infective case among any farm household or staff. We understand that his visit was a brief one, and it is rather unfortunate that more time was not given to this important part of the investigation. It may take weeks to elicit all the information relevant to a milk-borne epidemic. The details given of dealer A's operations are somewhat conflicting; it is suggested that his Grade A supply may have been implicated, but it is not shown that dealer F had contracted for a supply of Grade A milk from him, and it appears unlikely that dealer A would sell his best milk to a rival as ordinary commercial milk. More use might have been made of some of these facts, and such other phenomena as the complete immunity from the disease of a large school receiving milk only from dealer A, to narrow down the number of farms possibly involved. Yet those who have frequent dealings with the milk trade are well aware of the difficulty in threading its ramifications. The report of the Chief Medical Officer exhibits a striking difference in the age-distribution of the epidemic in question, as compared with other outbreaks in 1926, or, indeed, with the generality of epidemics. Only 25 per cent. of the patients were under 10 years of age, against the usual percentage of 80 or 90. It is natural to explain this by the fact that the schools affected contained children whose ages were mainly over 10, but Dr. AYCOCK claims that the proportion of cases under 10 among persons outside boarding schools was just over 50 per cent., which is still very low.

Examining Dr. AYCOCK'S views in relation to our criteria, we find his contentions to be that the epidemic tallied with a milk outbreak in its suddenness, in an incidence which was mainly on the consumers of a single milk-supply, in its unusual age-distribution, and in the somewhat equivocal and remote character of the other connexions between many of the cases occurring almost contemporaneously. The controls, according to Dr. AYCOCK, were sufficient in volume to remove any suspicion of coincidence; according to the Ministry they were not, and this is a point which should easily enough be cleared up. Whether there was an infecting case at any farm supplying the suspected milk will probably never be decided, but the fact that none was found must not be regarded as conclusive evidence against the theory of milk conveyance; failure to do so has been a common enough experience in milk-borne epidemics of all the infectious diseases. On the general question of probability it should be noted that the frequency of reputed instances of milk-borne poliomyelitis is not of a lower order than that in the commoner zymotics when allowance is made for their much greater prevalence. To sum up, we should say that Dr. AYCOCK appears to dismiss the evidence of person-to-person infection rather lightly, but has justice been done to the evidence of transmission by milk? It may be presumed that the facts with which he was dealing were equally known to, and probably in the first instance ascertained by, the public health officials who made the inquiry and who did not come to the same conclusion.

Annotations.

"Ne quid nimis."

THE WORLD INCIDENCE OF DISEASE.

MEDICINE and hygiene were alive to the advantages of international coöperation long before the League of Nations came into existence, but the Health Section is doing a great work in promoting a wider view of disease and in focusing the varied activities of different countries. Pathogenic bacteria have no nationalities, and, with the world rapidly shrivelling as far as human intercourse is concerned, epidemic disease is no longer a parochial question. The Health Section receives information on the prevalence of notifiable diseases from practically all countries where such information is collected; it distributes the collected facts by weekly and monthly publication, and issues every year a general survey, the fourth of which (for 1926) has recently been received.[1] The first part reviews the main epidemic diseases, and compares their present prevalence with their past history with many maps and diagrams. Plague deaths in India fell below 50,000 for the first time since it reached Bombay in 1898, and the trend in recent years hopefully suggests that the pestilence is now really on the decline, perhaps because vaccination is received more gratefully and abundantly, possibly because man is breeding out a more resistant race. The article on small-pox gives a summary view of the curious varieties into which the condition seems to be separating out; if the case mortality in England had been what it was in India there would have been 2427 deaths instead of 18, and perhaps fewer conscientious objectors. An interesting map shows the progress of a very severe type of relapsing fever, due to the European spirochæte, across Africa from the Niger in 1921 to the Sudan in 1926. It would be interesting to know why the case mortality of typhoid in Norway and Austria is less than half what it is in England and Japan. Nashville, the most typhoid-ridden big town in the United States, will welcome the new medical school which has been established there. And in this way under each of the important diseases the report gives much information and raises many questions. The second half of the volume is taken up with a mass of statistics arranged under countries. These are doubtless of uneven value; some of them are first rate, and even the worst are better than none. And we anticipate that their incorporation and publication will do a good deal to stimulate the countries with imperfect registrations to raise their standard to the best. The international bands of sanitarians who wander through one another's countries nowadays to see how things are done will help this on very much.

DOMESTIC HEATING.

THE need for preventing the pollution of the air of our cities by smoke has been brought prominently before Londoners by the dangers and discomforts of the ground fogs of Oct. 3rd to 7th and Nov. 7th to 10th, and the pitch-darkness of Nov. 23rd. While many parts of the Home Counties were bathed in sunshine the metropolis was shrouded in gloom, and vehicular traffic rendered slow and difficult. It is true that in the London area the deposit from the air diminished from 450 tons per square mile in 1915–16 to 284 in 1921–22, but since the latter date there has been little improvement, and we still have far to go before our air is clean. The percentage of sulphates in this deposit, which amounted in 1915–16 to 17, fell to 8 in 1921–22, showing a greater reduction in sulphur than in total deposit. It is estimated that in London domestic smoke forms about two-thirds of the whole, so that a smokeless solid fuel would

[1] League of Nations Fourth Epidemiological Report of the Health Section for the year 1926. London: Constable and Co.

go some way to purify the air. In a paper which he read at the recent Public Works, Roads and Transport Congress Mr. F. W. Goodenough drew attention to the contribution which the gas industry is making to the abatement of the smoke nuisance, setting out the case for gas and coke without being unduly sanguine as to the part which will be played by low temperature coke. Large scale experiments are now being made by the gas industry in coöperation with the Government in order to produce a fuel of this kind. At present some 65,000,000 tons of coal are burned yearly in the factories of the Kingdom, and 40,000,000 tons in domestic fires, while gas-works in carbonising another 20,000,000 tons produce about 10,000,000 tons of coke. This quantity of coke would not supply our domestic needs for, as Mr. Goodenough points out, the whole output may soon be absorbed by the increasing use of coke boilers. In order to produce enough low temperature coke to satisfy domestic requirements at least 50,000,000 tons of coal per year would be needed. Each ton would produce at the same time about 3500 cubic feet of rich gas having a calorific value of 800 to 1000 units, quite apart from other valuable by-products. A profitable outlet for these would have to be found. The 5,000,000 tons of anthracite mined per year in this country are palpably insufficient to solve the smoke problem; and the present type of slow combustion stove in which it is burned does not provide the ventilation which is one of the essential functions of a domestic fire. Electricity is hardly in the running for domestic heating in a country which has no great waterfalls or other supplies of cheap natural energy. To generate electricity by burning coal implies an initial heat loss of about 80 per cent., while the loss in producing gas and coke is of the order of 25 per cent. Thus when heat is required it is obviously uneconomical of fuel to obtain it by electricity. What, then, is the solution of the domestic smoke problem? It would seem unlikely that low temperature, or any form of coke, can be the way out, if only because the making of coke implies also making gas. The combination of gas with some form of coke for domestic cooking and heating appears, then, to give most promise of success.

INSULIN AND TUBERCULOSIS.

IT is generally recognised that the introduction of insulin has offered a new hope to the diabetic patient who at the same time suffers from active tuberculosis, and it was inevitable, therefore, that insulin treatment should, sooner or later, be tried for the non-diabetic phthisic. The few records so far published have shown varying results, some favourable and others unfavourable, especially as regards temperature reactions. Dr. J. Morin and Dr. F. Bouessée, of Leysin, have recently recorded a series [1] of favourable results with this group of non-diabetic phthisics. The injections of insulin were given subcutaneously half an hour before the meal. For the first two days 5 units were given, then two injections of 5 units were administered for two days, and afterwards the quantity was increased until 30 units were given in two doses daily. The duration of the treatment was about one month. Occasionally the limit of 30 units in a day was passed, but as a general rule this was regarded as a suitable maximum. No serious effects from hyperglycæmia were observed; transient disturbance three or four hours after an injection reacted immediately to the ingestion of carbohydrates. No local reactions of importance were noted, and there were no urticarial eruptions such as have been recorded by some observers. Furthermore, the patients, who were all afebrile at the beginning of the treatment, developed no rises of temperature as a result of the injections. In most of the cases appetite improved and the weight markedly increased, as is well shown by the charts accompanying the report. Cases in which the urinary excretion was measured showed no marked alteration and no œdema of tissues was observed. Eight cases in all are recorded, and Dr. Morin and Dr. Bouessée are satisfied from these preliminary tests that no harm results but that weight may be increased and some patients permanently benefited. It would be helpful to study a series of cases with metabolic tests carefully controlling the treatment at all stages.

[1] Annales de Médecine, October, 1927.

OPTIC NEURITIS.

Two different abnormal states of the optic disc have in the past been known as optic neuritis. One of them is a swelling which is often very marked and can be more or less accurately measured by the ophthalmoscope in terms of dioptres; it completely obliterates the margin of the disc and the veins are very much swollen. This condition may exist without any loss of visual acuity and is not really an inflammation of the nerve at all but an œdema caused by a pathological increase of intracranial pressure. The sign exists in both eyes, though it may be more advanced in one than the other. It is always of grave import, being one of the typical signs of intracranial tumour. So far as sight is concerned the condition, if unrelieved, passes sooner or later into optic atrophy, involving blindness, partial or complete. If, however, the intracranial pressure is relieved by a timely trephining operation the swelling of the disc in a typical case subsides and optic atrophy is averted. This important fact will always be associated with the pioneer work of the late Sir Victor Horsley. Since there is no inflammation of the nerve in these cases, the term "optic neuritis" has been considered inappropriate and the terms "choked disc" or "papillœdema" are now generally employed. True cases of optic neuritis are those in which there is actual inflammation of the optic nerve spreading either from the sheath or from an infective focus in the substance of the nerve. Toxins circulating in the blood due to general disease or to syphilis appear to be the most usual cause. In these cases the ophthalmoscopic picture is much less striking than in cases of choked disc. On the other hand, the loss of visual acuity occurs much earlier. The obliteration of the disc margin is the earliest and the most valuable ophthalmoscopic sign. The swelling of the disc and engorgement of the veins may be slight. When a toxin is the cause the condition is usually bilateral. When there is a localised inflammatory focus one eye only may be affected. Sometimes the retina is involved, as in albuminuric retinitis, and the case is one of "neuroretinitis." In other patients, where the focus of inflammation is some way behind the disc, the disc itself may appear normal and the case is said to be one of "retro-ocular" or "retrobulbar" neuritis. Since it is the macular fibres which are chiefly affected, the typical symptom of retro-ocular neuritis is a central scotoma. It is still uncertain whether ordinary tobacco amblyopia is a true retro-ocular neuritis affecting both nerves or whether the primary lesion is in the ganglion cells of the retinæ with secondary changes in the nerves. It is certain that one of the most common causes of retrobulbar neuritis is disseminated sclerosis. The causation of a great many cases remains a mystery, and although it has been usual to suspect infection from one of the nasal sinuses, especially since Onodi published his work demonstrating the thinness of the partition separating the optic nerve from the sphenoidal and ethmoidal sinuses, the actual number of cases where this causation may be considered to have been proved is relatively very small. The fact is that acute retrobulbar neuritis generally tends to get well in a few weeks without any treatment at all, and credit for the recovery is easily misplaced. This applies even to cases which are caused by disseminated sclerosis, although here the retro-ocular neuritis should be regarded as a danger-signal for what is in store in future. What has already been stated is common knowledge to the physician and ophthalmic surgeon. How far does it require modifi-

cation in the light of recent research? First, as to nomenclature. Though increased intracranial pressure is the most common, it appears to be not the sole cause of choked disc, and in order to have a name applicable to those cases alone which are due to increased pressure, Dr. H. M. Traquair, of Edinburgh, has suggested the term "plerocephalic œdema." We are inclined to agree with Sir John Parsons who, at the Edinburgh meeting of the British Medical Association,[1] as one largely responsible for the introduction of the term "papillœdema," deprecated the further complication of nomenclature proposed. Speaking at the same meeting, Dr. H. Ronne, of Copenhagen, stated that in his opinion it is impossible to draw a hard-and-fast line between papillary œdema and papillary inflammation. We must be satisfied, he says, in restricting ourselves to the knowledge that the high grades of papillary œdema are most frequently caused by increased intracranial pressure. He further called attention to a peculiar condition which is called choked disc with sudden initial blindness. This, he says, may be the consequence of disease in the trunk of the optic nerve and therefore without analogy with the choked disc of cerebral tumour. In such cases a wrong diagnosis has often been made. To avoid it a careful examination of the visual fields is of special importance. Similarly, no hard-and-fast line can be drawn between cases of true optic neuritis with visible changes at the disc and those of retrobulbar neuritis when the ophthalmoscopic appearance of the disc is normal. With regard to the connexion between this disease and the nasal sinuses, Dr. J. V. Paterson, after remarking on the tendency to spontaneous cure, went on: "I do not know any kind of cases in the whole range of medicine where one is more likely to be deceived with regard to the efficacy of operative measures than these cases of acute retrobulbar neuritis in young adults." Speaking at the same meeting, Dr. A. J. Ballantyne said: "Very few of my cases of retrobulbar neuritis, whether acute or chronic, have shown evidence of nasal sinus disease, and in the absence of clinical signs operation has not been recommended." Dr. de Schweinitz, on the other hand, was convinced that infective spheno-ethmoidal disease was a definite ætiological factor in many cases of retro-ocular neuritis. Onodi himself found nine cases of optic neuritis definitely resulting from nasal sinus suppuration, but in these cases the disease was extensive and destructive.[2]

SCARLATINAL INFECTION.

RETURN cases of scarlet fever have always been a bugbear to those who have had to manage isolation hospitals. It is usual to define as a "return" case an attack of scarlet fever which occurs in a family within 28 days of the return home from hospital of a recovered scarlet fever patient. The definition is, of course, quite arbitrary as the so-called return case may be a secondary case which has arisen in the family from quite another source of infection. In the past more or less elaborate systems have been devised, by means of discharging blocks with bathrooms and subsequent detention in a ward free from infection, to reduce the number of return cases to a minimum. Desquamation is now regarded as of no consequence. Complete absence of nasal or aural discharge has always been considered important. More recently, with the assistance of surgeons, attention has been given to the removal of diseased tonsils and adenoids prior to discharge from hospital.

With all these precautions, however, cases continue to occur where the patient leaving hospital appears to act as an infector of others. In the Hull report for 1926 Dr. W. Allen Daley describes the experiences of a family consisting of the parents, three girls, and three boys. Two of the sisters, age 15 and 3 respectively, were admitted to hospital f scarlet fever, one on the second day of the illnes and the other, desquamating, on the thirteenth da of the illness. Both illnesses ran a normal cours and the two sisters were discharged after 32 days hospital. Five days after their return home t third sister, aged 9, developed scarlet fever. S was removed to hospital at once and remained the 29 days. Twenty-four days after her return hom a brother, aged 6, contracted scarlet fever. He w nursed at home, while his two brothers were sent stay with relations. This illness ran a normal cour and in due time the house was disinfected and l two brothers returned home. Twenty-seven da after disinfection a brother, aged 13, develop scarlet fever, went to hospital, remained there 35 da and returned home. The remaining child, a bo aged 11, succumbed to the disease 16 days after t return home of the second brother, and was taken hospital. Why did not these susceptible childr take the disease from the first two cases, instead having it in serial numbers over a period of abo 250 days? All the six illnesses ran an uncomplicat course and there were no discharging noses or e to make the spread of infection likely. All expe enced medical officers of health can cite somewh similar occurrences, and it seems probable th immunity from scarlet fever must vary from time time in a more capricious way than immunity diphtheria as shown by the Schick test. Possibl those who have had experience of the Dick test m have come across evidence of day-to-day variati in scarlet fever immunity.

The same apparently capricious behaviour of scarlet fever infection is observed in its relation milk. On the one hand, we have cases occurring the families of dairy farmers and dairymen, frequen in circumstances which would seem to make tra mission of the infection to the milk a certainty. nothing happens. On the other hand, when a mi borne epidemic actually does occur, it is, as often as n extremely difficult to explain how or why the m became infected. Milk, when infected, is a very pot medium for transmitting the infection back to hun beings. As proof thereof it has been noted that milk-borne epidemics the incubation period is shorte and persons, immunised by a first attack, frequen contract second or abortive attacks with pronoun throat symptoms. Are these phenomena to explained by the increase of dose caused by growth of the virus in the milk, or by the fact t the irrigation of the tonsils and throat with infec milk is a peculiarly effective method of inoculatio Until we know more about the causal mic organism we are confronted by several unkno quantities—the amount of the dose, the variability the immunity, and the existence of carriers.

TREATMENT OF RICKETS IN MONKEYS.

IT has long been known that monkeys in captiv in the temperate regions suffer from rickets and variably susceptible according to age and spec Some succumb in a space of months, others survive years; but even the latter scarcely ever breed still more rarely (perhaps never) rear their you Efforts to combat the disease by dietetic means h not proved very satisfactory owing to the disincli tion which monkeys have for consuming fats o sufficient scale. Recent work by E. M. Hume H. Henderson Smith[1] shows that when a mon kept under ordinary menagerie conditions has de loped severe rickets, easily demonstrable by ra graphy, it can be cured by daily exposures, last 10–20 minutes, to a mercury-vapour quartz la The same workers, together with N. S. Lucas,[2] h also shown that the mercury-vapour quartz lamp

[1] Reported in THE LANCET Sept. 17th, p. 601. For original papers by Paterson, Ronne, and Ballantyne see Brit. Med. Jour., Nov. 12th.

[2] Quoted by N. H. Pike, Irish Journal of Medical Science, October, 1927.

[1] E. M. Hume and H. H. Smith: Veterinary Journal, 1 lxxxiii., 368.

[2] N. S. Lucas, E. M. Hume, and H. H. Smith: Proc. Soc., Part 2, 1927, p. 447.

e used prophylactically to keep marmosets in health nd fine breeding condition. These little creatures are ighly susceptible to rickets, and though there are a ew scattered records of young being born in this ountry, they do not seem ever to have survived. nder the influence of the mercury-vapour quartz mp, however, young have been born at the Lister nstitute and have thriven. The possibility of breeding onkeys in captivity offers new opportunities to orkers in psychological laboratories, doing the type work, for instance, which has been done by Prof. . M. Yerkes at Yale. A knowledge of the means to ep them in health is of importance to all laboratory orkers who use monkeys, as well as to those who are charge of menageries and to those who keep monkeys pets.

THE ACTION OF LIPIODOL.

IODISED oil, in one form or another, has now come a valuable instrument in the technique of diological examination of the lung. Whilst firmly nvinced of its great value as a diagnostic procedure, . E. Archibald (Montreal) and Dr. A. Lincoln own (San Francisco) have recently published [1] a eful review of the subject, in which they call attenn to the possible dangers of its use when introced into the tracheo-bronchial system. They have ncentrated their attention chiefly on the particular paration sold under the registered name lipiodol, ich is an iodised vegetable oil containing 40 per t. of iodine. After injection into the tracheonchial system a large percentage of the oil is minated by expectoration or swallowing; this the hors consider of no interest. A proportion of the is, however, absorbed, and in certain cases has n found to cause symptoms of iodism. Most of se cases appear to have shown only mild symptoms iodism, but a few more serious complications have sen. In experiments on cats the authors found oil present in a minute state of subdivision in ny of the tissue elements that make up the pulnary structure—even in the cartilage of the smaller nchi. These facts were demonstrated by the use Scharlach R. in sections. The authors believe that absorption—which may be in some way assoed with an internal digestive power possessed by lung—is likely to be delayed in an extensively ased lung, especially if cavities are present, and y even so fill alveoli as to interfere with oxygen orption. Much apparently depends on the iodine rance of the patient, which, fortunately, in most viduals is high. The authors state, on the authoof Forestier, that after an intratracheal injection 0 c.cm. of lipiodol, the daily elimination of the ne during the first two weeks is 0·02 g. They e noted cases in which the lipiodol shadow showed ne radiogram for 15 months, though in the majority ases the shadows only persist for a few weeks. h regard to the technique of administration, the s of local sepsis, a false passage and laryngeal ma are discussed, and the suggestion is made that the first injection, at least, the bronchoscopic hod should be used, in order to obtain a satisory and direct visual examination of the injected . The effect of the cough reflex in disseminating oil into distant parts of the lung is also emphasised. gh reflexes have not been noted in ramifications ronchi smaller than those of the second order. has been stated that, inasmuch as the normal heo-bronchial tree can hold 5000 c.cm. of air, .cm. of injected lipiodol can be regarded as a l amount, but it must be remembered that in se this tracheo-bronchial capacity may be nished by as much as 50 per cent. Moreover, lipiodol is known to float on the top of sputum, locking of a small bronchus may occur, especially oints where the cough reflex is not excited.

s to the therapeutic effect of lipiodol on the rculous process the authors are in doubt, but ider that in certain cases and in properly regulated doses lipiodol may have a similar effect to that of tuberculin. Recent work on this subject by F. G. Chandler and S. R. Gloyne [2] would seem to show that the actual bactericidal effect of lipiodol on *B. tuberculosis* in vitro is not very great, and that there is no lipolytic action when this substance is injected into the pleural sac of normal rabbits, and no toxic effects on distant tissues. These workers suggest, in fact, that from a purely therapeutic point of view the effect of lipiodol is probably mechanical. In summarising the dangers which may result from the injection of lipiodol, Archibald and Brown record a small number of unfavourable cases which they have collected from the literature, including one case where subacute sepsis was considered to be due to lipiodol injection five days previously. Without any desire to minimise the undoubted value of lipiodol as a diagnostic aid in pulmonary disease, these authors believe that there are definite potential risks which should be weighed before patients are subjected to its indiscriminate use. Probably in the hands of skilled operators these risks are not great, but the method is obviously one which cannot be carried out without proper safeguards and training in acquiring the technique. In a later communication [3] the same authors give the results of an experimental investigation with lipiodol. They injected cats intratracheally, and found that cough alone increased the rapidity and degree of penetration of lipiodol and lipiodol-sputum emulsion, and that this action was still more definitely marked with tracheal compression. In fact, an actual in-driving effect on the lipiodol was caused by cough. No similar indriving effect was observed with thick, tenacious sputum. Apparently, whereas coughs may tend to drive a fluid substance, such as lipiodol or lipiodol-sputum emulsion, further down the bronchial tree, it has not the same effect in breaking up and forcing thick, tenacious sputum into the finer ramifications.

[1] Jour. Amer. Med. Assoc., 1927, lxxxviii., 1310.

[2] Tubercle, 1927, viii., 563.

[3] Amer. Rev. of Tub., 1927, xvi., 111.

MEDICAL AMERICANA.

AN Exhibition of Early and Later Medical Americana was held in the library of the New York Academy of Medicine, when the new building of that institution was opened last month. The Catalogue contains 95 items, all of which are of interest to students of the history of disease whether they be Americans or no. The first medical publication in the United States, of which a photostatic reproduction is shown, was a broadside printed at Boston in 1677, entitled "A Brief Rule to Guide the Common-People of New England how to order themselves and theirs in the Small Pocks, or Measles." The author was Thomas Thacher, pastor of the Old South Church, in Boston, who had picked up a smattering of medicine sufficient in his day for the needs of his flock. He gives sensible directions for the treatment of the sick, but is, of course, ignorant of inoculation. It was not till 1721 that Benjamin Colman, also a preacher, published at Boston "Some Observations on the New Method of receiving the Small-Pox by Ingrafting or Inoculating," a method of which he was the advocate. Lady Mary Wortley Montagu had only recently described inoculation as practised in Constantinople. In 1721, probably after Colman's publication had appeared, Increase Mather, at one time President of Harvard, republished "Some further Account from London of the Small-Pox Inoculated." The title of the second edition of his pamphlet, reproduced in the Catalogue, refers to a "late Scandalous Pamphlet entituled Inoculation of the Small Pox as practis'd in Boston, &c.," and we are left in doubt as to what attitude the father took towards the innovation of his son, Cotton Mather, who had brought the knowledge of the treatment to New England, where it had been at once acted upon by Zabdiel Boylston. On June 26th, 1721, Boylston inoculated his six-year-old boy, and thus began a controversy which raged for many years in America,

many pious Puritans and witch-burners holding that the practice was contrary to the will of God, just as, at a later date, their pietistical successors opposed anæsthesia. Vaccination was another much-canvassed method, and, as several book-titles show, cow-pox figured in America as kine-pox. Benjamin Waterhouse's work on "A Prospect of Exterminating the Small-Pox," in two parts, is exhibited, the first part having appeared at Boston as early as the year 1800.

Of American medical journals the first was the *Medical Repository*, which ran into 23 volumes from 1797–1824. The earliest one in Canada, the *Journal de Médecine de Quebec*, was first published as a quarterly in January, 1826, but met its end in little more than a year. The hospital reports came from the Hôtel Dieu, the oldest Canadian hospital, founded in 1639. Benjamin Franklin's letter on catheters and letters to Pringle and George Wheatley are on exhibition, the first-named being the original autograph presented to the Academy by Fessenden Nott Otis. "Medicine owes a great deal to this remarkable man," says the Catalogue, for though Franklin was not a doctor he was elected to several medical societies. He wrote amusing trifles for his friends, and a facsimile is shown of his "Dialogue entre le Goutte et M. F. à Minuit le 22 Octobre, 1780." William Beaumont, though an English F.R.C.S., was American born and his classic work on the digestion was published at Plattsburgh in 1833 under the title "Experiments and Observations on the Gastric Juice and the Physiology of Digestion." This was the record of his experiments on the famous Alexis St. Martin, who had a fistula of the stomach through which Beaumont was able to observe the movements of the gastric juice. The work here shown is the property of the Academy. Oliver Wendell Holmes, the poet and wit, made one great contribution to medicine when in 1843 he read his paper on the Contagiousness of Puerperal Fever before the Boston Society for Medical Improvement. The famous paper appears as Art. V. in the *New England Quarterly Journal of Medicine and Surgery*, which lasted for about a year in 1842–43. Next to it we note Ephraim McDowell's "Three Cases of Extirpation of Diseased Ovaria." This appeared in the *Eclectic Repertory* in 1847, but the first operation was performed in 1809. The pioneer writings on Anæsthesia by Crawford Long, Bigelow, and Morton will receive close attention. We cannot write here in detail of the more recent works or articles by pioneer medical men, and it must suffice to mention such names as Halsted, Corning, Marion Sims, Austin Flint, Stough Bobbs, Huntington, and Weir Mitchell. All these are represented in an exhibition whose promoters, including the Committee on Exhibits and the learned librarian, Dr. Archibald Muloch, deserve the heartiest congratulations on their achievement.

A CONFERENCE ON ACTINOTHERAPY.

AN international exhibition and conference, organised by the *British Journal of Actinotherapy*, is to be held at the Central Hall, Westminster, from Tuesday to Friday, Dec. 13th to 16th. The conference is divided into three sections, the first of which (Tues. and Wed.) will discuss light and heat in medicine and surgery; the second (Thurs.), scientific research in relation to actinotherapy; and the third (Fri.), recent advances in optics. Each section will be opened by papers from distinguished workers at home or abroad, to be followed by general discussion. At the first section, which touches medical practice most closely, Sir Henry Gauvain will preside, and papers will be read by Dr. Franz Nagelschmidt (Berlin), Dr. L. G. Dufestel and Dr. Jean Saidman (Paris), Dr. A. Eidinow, Dr. F. Hernaman-Johnson, and Dr. E. P. Cumberbatch (London). On the Wednesday evening Dr. H. Stanley Banks will give an address on the place of actinotherapy in public health work. At the second section, Prof. E. C. C. Baly will preside and papers will be read by Dr. Leonard Hill, Mr. I. M. Heilbron, D.Sc., and Dr. F. H. Humphris. The exhibition, to be held concurrently with the conference, will be opened on Tuesday at 2.30 P.M. Sir Alfred Mond; apparatus and accessories of kinds for ultra-violet and kindred therapy will the be shown, some for the first time. Demonstratio will be given, amongst them one by the staff Westfield College, London, on the effect of ult violet radiation on plants. A concession for reduc rates on the railways has been obtained. Invitati tickets may be obtained from the office of the Journ at 17, Featherstone Buildings, London, W.C. 1.

PHYSIOLOGY AT THE ROYAL SOCIETY.

IN his opening address at the anniversary meeti of the Royal Society on Nov. 30th, the Preside Sir Ernest Rutherford, spoke of contributions ma to science by physiologists living and deceas In the person of Ernest H. Starling the Society h lost a stalwart champion of the claims of research, a one who had found in physiology the central inter and enthusiasm of his life. Starling's aim had be as he himself put it, "to attain to a comprehensio the wisdom of the body and the understanding the heart and thereby to the mastery of disease a pain." Most famous of his joint researches wh Bayliss was the work on the stimulation of pancrea secretion following the discharge of stomach conte into the small intestine, which led to the discov of secretin and the conception of chemical messeng or hormones. Turning to living physiologists, E. Rutherford spoke of the award of the Cop Medal to Sir Charles Sherrington, whose wo embodied in some 200 original memoirs, had revea a fundamental plan and orderly sequence in the re actions of the body. He had also given impu to the original and far-reaching investigations the late Rudolf Magnus, of Utrecht, on animal post Sherrington's work, having provided the clue to understanding of many of the motor symptoms nervous disease, held out promise that even higher functions of the central nervous system wo not remain permanently beyond the reach of m experimental inquiry. Sir Thomas Lewis, to wh a Royal Medal had been awarded, had taken a lead part in the remarkable growth of our knowledge the mammalian heart-beat. Until he began his w nothing was known for certain as to the relatio anatomical structure in the heart to the origin propagation of the beat. In this special field physiology and pathology Lewis's researches replaced scattered observations by coherent established theory. The President also alluded to award of the Buchanan Medal to Dr. Major Greenwo whom he described as almost unique in the posses of both the medical knowledge and mathemat ability essential to the elucidation of many probl in physiology and epidemiology.

THE CONWAY EVANS PRIZE.

The first award of the Conway Evans prize has b made to Sir Charles Sherrington. It may be reca that when in 1925 the residuary trust funds of estate of the late Dr. Conway Evans, medical of for the Strand district, who died in 1892, were tr ferred to the President of the Royal Society and President of the Royal College of Physicians of Lon and their successors in office, the terms of the bequ directed them to apply the proceeds "in giv rewards to such person or persons who in the opi of the Presidents have rendered or shall from tim time render some valuable contribution or addi to science as it exists at the time of my death ei by invention, discovery, or otherwise." In accorda with this direction the Presidents have awar 500 guineas to Sir Charles Sherrington on the gro that his work on the physiology of the nervous syst and chiefly on the physiology of the brain and sp cord of the higher animals, has brought many com nervous functions for the first time within the rang investigation and analysis. His discoveries, they have had a profound influence throughout the w

on the experimental sciences of physiology and psychology, and have thrown a flood of new light on many of the symptoms of nervous disease.

Dr. Sydney Smith, principal medico-legal expert to the Egyptian Government, and professor of forensic medicine in the School of Medicine at Cairo, has been elected to the chair of forensic medicine in the University of Edinburgh, left vacant by the death of Prof. Harvey Littlejohn.

THE next social evening of the Royal Society of Medicine will be held on Wednesday, Dec. 14th, when Sir James Berry (the President) and Lady Berry will receive the guests at 8.30 P.M. in the Society's House at 1, Wimpole-street, W. At 9.30 Sir Alexander Houston will give an address entitled the Romance of London's Water-supply, and this will be followed by demonstrations.

IT has been the practice of the Royal Medical Benevolent Fund for many years to present to the annuitants and some of the most necessitous grantees a Christmas gift of 25*s*. The treasurer now makes an appeal for £370 to keep up this practice. The Committee has not in hand any special fund to draw upon to meet this Christmas gift, to which the recipients in former years are no doubt looking forward, and we hope that many of our readers may be able to send subscriptions to Sir Charters Symonds, at the offices of the Fund, 11, Chandos-street, Cavendish-square, London, W. 1.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Lt.-Comdr. L. S. Goss to be Surg. Comdr.

Surg. Lt. (D) F. R. P. Williams to be Surg. Lt.-Comdr. (D), F. W. Besley and J. W. Simpson to be Surg. Lts.

ROYAL NAVAL VOLUNTEER RESERVE.

Surg. Lt. (D) D. MacGregor to be Surg. Lt.-Comdr. (D).

ROYAL ARMY MEDICAL CORPS.

Temp. Col. (Bt. Col. and Lt.-Col.) J. W. West, K.H.S., relinquishes the rank of Temp. Col. on ceasing to be empld. as Consulting Surg. to the British Army.

Maj. L. A. A. Andrews is placed on the half-pay list on account of ill-health.

Maj. P. M. J. Brett is re-empld. under Art. 507 (*b*), Royal Warrant for Pay and Promotion, 1926.

S. R. M. Mackay to be Lt. on prob.

ARMY DENTAL CORPS.

Lt. R. G. Law to be Capt.

TERRITORIAL ARMY.

Hygiene Companies.—Capt. W. D. Quirke, having attained the age limit, relinquishes his commn.

ROYAL AIR FORCE.

Flying Officer J. McCarren resigns his short service commission.

UNIVERSITY OF LONDON MEDICAL GRADUATES SOCIETY.—At a dinner held at the Langham Hotel on Nov. 25th it was decided to form a Society of Medical Graduates of the University of London. Sir StClair Thomson presided and the formation of the society was proposed by Sir John Rose Bradford, President of the Royal College of Physicians of London, and seconded by Sir Cuthbert Wallace, Dean of the Faculty of Medicine of the University. A provisional committee will formulate a constitution to lay before a general meeting of the society early in 1928. Mr. W. Adam Eccles was elected acting hon. treasurer, and Dr. C. A. H. Franklin and Dr. Dorothy Hare acting hon. secretaries. Medical graduates of the University may join the society by writing to the hon. secretaries at 124, Harley-street, W. 1.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

CCLII.

THE PREVENTIVE TREATMENT OF DISABILITY AFTER FRACTURES.

To attain success in the treatment of a fracture it is necessary first of all to have a clear idea of what we are setting out to do. The old aim of treatment—merely to produce strong bony union in good line—has caused incalculable pain and loss of wage-earning capacity, and the ideal towards which we should strive nowadays is something altogether wider—namely, restoration of the patient to the state of bodily and mental efficiency in which he was before the accident. Not only the injured bone, but the muscles, joints, and circulation, the dexterity, and even the mental outlook, have all to be brought back to normal.

Accurate diagnosis is the first step towards efficient treatment. Whenever possible in any case of fracture or probable fracture, two radiograms should be taken, in planes at right angles to one another. Where this is anatomically impossible, much may be learned from stereoscopic radiograms. It is not enough to know that a bone is broken; it is necessary to know exactly how it is broken. In many cases it is only by means of X rays that the fact of fracture can be established. And it must be remembered that a small lesion does not necessarily connote a small disability; for example, a fracture of the carpal scaphoid (which is very commonly overlooked), or a chip-fracture of a finger, may be very disabling.

Splints.

Having established the fact of fracture, the next step is *not* to choose a splint. On discovering the fracture the thought should not be, "What splint shall I use?" but rather, "Need I use a splint at all?" A splint is only required when an equally good functional result cannot be attained without it, and if in every case the mechanics of the fracture are carefully considered from this point of view, it will be apparent that splints are often put on when they are quite superfluous and even harmful. A cumbrous back-splint and foot-piece, for example, cannot influence the position of a broken middle metatarsal; the adjacent bones splint it, rest can be secured by slinging the foot, and other support only induces unnecessary stiffness of joints and wasting of muscles. A fracture of the lowermost end of the fibula, again, cannot possibly become displaced; it is too firmly held by its ligaments. Here a splint is not merely unnecessary but actually does damage.

It should always be remembered that, apart from traction-splints, no splint should ever be used to produce reduction; it serves only to maintain it. For instance, if the bones of a child's forearm are bowed, it is useless to try to push them straight by the pressure of a projecting pad on a splint; the bandages will cause a splint-sore if they are tight enough to correct the deformity. The limb should first be "set" properly, and then kept in place by the splints. It is well to remember, too, that wooden splints, being made to fit everybody, really fit nobody; they do not fix a limb, but only rest it. Often, it is true, that is all that is needed, but sometimes true fixation is required, for after fracture the muscles are in a highly irritable state and pull upon the fragments with much more than their normal power. Whether or not this will displace the fragments depends mainly on the type of fracture and the direction of the muscular pull. The risk is small where the fracture is transverse and the muscles run axially, whereas it is large when the fracture is oblique, or where the muscles pull obliquely on the fragments. When true immobilisation by splints is desired, it is usually a

good plan to use plaster-of-Paris, carried well beyond the origins and insertions of the muscles which are acting on the fragments.

Reduction.

If reduction presents the least difficulty, full anæsthesia should be employed. The abolition of pain and of muscular resistance more than compensates for the patient's aversion to being made unconscious, and for the additional trouble and expense. In particular, every case of Colles's and Pott's fracture should be reduced under general anæsthesia, for which purpose gas is inadequate, unless the surgeon and anæsthetist are both exceptionally skilful.

All fractures should be reduced at the earliest possible moment, before effusion and increasing spasm have made the conditions harder. It is wrong to wait until the swelling is going down, for by that time contracture has appeared, and both reduction and retention have become unnecessarily difficult. A good primary reduction, moreover, always gives a better result than any secondary reduction. This applies to operative as well as non-operative treatment. If it is thought that a fracture should be treated by operation, the surgeon should be called in at the earliest possible moment, that he may have the opportunity of early reduction if he thinks proper. Anyone who has striven with an old fracture with shortening will appreciate this point.

Before undertaking reduction it is important to detect any injury of nerves, on which a charge of unskilful treatment is often based. Involvement of the musculospiral nerve in fracture of the shaft of the humerus, and of the circumflex in injuries of the neck of the bone, are cases in point. The former calls for hyperextension of the wrist, in splints, and the latter for abduction of the upper limb to a right angle.

Reduction should always be as complete as possible. Whilst bad alignment is sometimes compatible with good function it is nevertheless true in all cases that the better the alignment the better is the functional result. And it cannot be too strongly emphasised that in the case of the lower limb any deviation of the normal axes of the joints will inevitably result in serious and permanent disability. The leg differs from the arm in that it is a weight-bearing limb. To make it work with its joints "out of truth" is like driving a car with a bent axle, producing unequal strains. "Mechanical arthritis" appears—i.e., osteo-arthritis due to mechanical causes—and becomes steadily worse so long as the static fault remains. Shortening of the limb is of no great consequence if the bones remain parallel, as seen from the front. A slight lateral displacement of tibia and fibula is compatible with very good function provided that the upper and lower fragments remain parallel. But the moment that any abduction or adduction appears in any part of the lower limb, and the joint-surfaces are thrown "out of truth," disability is a certainty. Every such condition demands complete correction at the earliest possible moment. It is futile to hope for the least relief from massage, special boots, wedging the sole, osteotomies, and the like; none of these can correct faulty mechanics. Permanent crippling will always occur, in Pott's fracture, unless the limb be set with the axes of the knee-joint and of the ankle-joint absolutely transverse; the top of the astragalus must always be exactly parallel with the ground. Valgus is fatal.

Massage and Movements.

After-treatment begins as soon as reduction is completed. Massage can be used with advantage in most fractures from the very day of injury; it gets rid of effusion, allays muscular spasm, and so minimises pain. Skilled sedative massage often aids reduction. Later, massage is employed to prevent wasting, and all possible joints are exercised to full range. Especially with compound fractures is it important to maintain the movement of unaffected parts; with fractures of the leg the hip must b moved daily, and with fracture of the forearm a sti shoulder is a disgrace. It must always be remem bered that the functional utility of the limb as whole is the measure of success in treatment; th bone is sometimes only a minor consideration. Wit fractures near joints, for example, it is usually mo important to consider the function of the joint tha the state of the bone; early movements are ind cated, and often it is possible to do without a spli and to move the parts from the first. A Colles fracture impacted in good position—i.e., witho backward rotation—is an example. Early mobilis tion is often facilitated by operation—e.g., wiring the patella, and direct fixation of supracondyl fractures.

This brings me to the question of movement Passive movements affect the joint-surfaces ar prevent adhesions, but do not affect the muscles the tendons in their sheaths. Active movements a always preferable, therefore, and in addition th stimulate the patient's mind, and compel him to tal an active interest in his cure. If there is ever ar doubt about the propriety of movements, or the sk of the masseuse, active movements should be pr ferred to passive, as they provide the added securi of pain. But passive movements are often necessa at first, because the freedom of the joints must restored before tired, wasted muscles can be expect to move the dead-weight of a limb.

Apprehension, often amounting to hysteria, pla a large part in many cases of fracture. Patients a often afraid to move their limbs, or confidently an cipate much greater disability than is really preser Here, again, prevention is better than cure. Patien should be encouraged, from the first, to move much of their limbs as possible, and to move the vigorously. In Colles's fracture, for instance, th should be made to clench their thumb and finge quickly and powerfully from the moment the fractu is first reduced. The medical profession itself responsible for much of the difficulty in the trea ment of fractures to-day. The public has be taught for years that their limbs must be kept absolute rest in splints for weeks, and they ha learned their lesson too well. Passive exercises a bad, because they do not call for physical and ment coöperation on the part of the patient. The whc atmosphere of treatment should be stimulative, a the result, as I have said, cannot be regarded satisfactory until not only the patient's injured lim but his whole capacity for daily life and work, ha been restored. At first mere range of moveme and muscular power have to be regained, but dexteri and fine coördination must later be cultivated ane and this can only be done by active, voluntar exercises. This may be very important to thc whose occupations are highly specialised.

Electrical Treatment.

Electricity is not a panacea in fracture-treatme It is useful, however, in stimulating the circulati and muscular contractions in the early stages f treatment when a limb is still in splints, and la on in reinforcing a nervous patient's feeble volunta efforts. It is not enough merely to touch the musc repeatedly with a faradic electrode without a effort on the part of the patient; the proper way to make him contract a muscle, and at the sa moment throw in a powerful faradic current so as bring the contraction up to maximum power. Keit work has shown that muscular contractions are f foremost importance in causing bony union. Faradi is also useful in convincing a hysterical patient th he can contract his muscles quite well, although thinks he cannot, and a really strong current cu many a malingerer.

ALAN H. TODD, M.S. Lond., F.R.C.S. Eng.
Orthopædic Surgeon, Croydon General Hospital
Surgical Specialist, Royal Air Force.

Special Articles.

GENERAL MEDICAL COUNCIL.

PENAL CASES.

TUESDAY, NOV. 22ND.

THE Council, in accordance with custom, heard the ases in public and deliberated on their findings in amera.

Reported by the Dental Board of the United Kingdom.

The Case of James Pickup, registered as of 124, tudley-terrace, Walmersley-road, Bury, in practice n July 22nd, 1878, L.D.S. R.C.S. Irel. 1888. This espondent had been convicted before magistrates for eing drunk and disorderly, for indecent behaviour, nd for importuning for immoral purposes, and the oard had recommended his erasure. Mr. Pickup did ot attend. His counsel, Mr. Maurice Healey, bjected that the kind of misdemeanour referred to Section 13 of the Dentists Act, 1878, was an indict-ble misdemeanour, and that consequently the ffences for which Mr. Pickup was convicted, not eing indictable misdemeanours, did not come within ie disciplinary jurisdiction of the Council. The resident stated that the Council had already been lvised, and had always acted upon the view, that ie word "misdemeanour" was used in the Act in s wider sense, and he accordingly overruled the bjection. The Council ordered Mr. Pickup's name be erased from the Register.

The Case of Frank Ernest Coe, registered as of), Defoe-road, Tooting, S.W. 17, Dentist, 1921, hose erasure the Dental Board had recommended r obtaining payment from a society for a denture hich he had not in fact made. The respondent, ho was not represented, pleaded that, since the atient had had several sound teeth left, he had ecided to fit a partial set, which took much longer an a full denture; owing to shortness of funds he ad claimed the amount at once. He had finished ie set in the same year. He had failed to appear efore the Dental Board on account of ill-health. he Council remitted his case back to the Board r further inquiry and report, and the President lvised him to be present at that hearing.

The Medical Register.

Cases adjourned from Nov. 24th, 1926:—

The Case of Percy Bateman, registered as of 423, ew Cross-road, S.E. 14, L.R.C.P. Edin. 1906, R.C.S. Edin. 1906, L.F.P.S. Glasg. 1906. This actitioner had been convicted of drunkenness on ur occasions between 1914 and 1926, and the Council d postponed judgment for six months. He was not esent. The Council, said the President, had had me difficulty in coming to the conclusion that the idence asked for at the original hearing had been lly supplied, and, in order to give Mr. Bateman e opportunity of supplying that evidence in satis-ctory amount and character, they adjourned the aring until the meeting of the Council in May, 28.

The Case of Thomas Blaney, registered as of 434, ondon-road, Norbury, S.W. 16, L.R.C.P. Edin. 1920, R.C.S. Edin. 1920, L.R.F.P.S. Glasg. 1920. Mr. aney had appeared before the Council at the last nter session for a conviction for drunkenness in 25, and for having been drunk when patients were der his care. The Council were satisfied with the idence of good conduct produced by the respondent, d did not direct the erasure of his name.

Cases adjourned from May 26th, 1927:—

The Case of Jogesh Chandra Bose, registered as 276, Chenywood-road, Birmingham, M.R.C.S., R.C.P. 1923, whom the Council had found guilty of giving a medical certificate which was untrue, misleading or improper, in a lax and careless manner. Mr. Oswald Hempson, on behalf of the respondent, read several letters from medical practitioners and others testifying to his good conduct during the past six months, and repeated his assurance that he would be extremely careful in future. The Council decided not to erase his name from the Register.

The Cases of (*a*) *Lawrence Crombie*, registered as of Dunollie, Dalmuir, Glasgow, M.B., Ch.B. 1913, U.Glasg.; (*b*) *Eliazer Gelfer*, registered as of 45, Abbotsford-place, Glasgow, C.5, L.R.C.P. Edin. 1923, L.R.C.S. Edin. 1923, L.R.F.P.S. Glasg. 1923; and (*c*) *William Mason Hamilton*, registered as of 63, Dixon-avenue, Crosshill, Glasgow, M.B., Ch.B. 1921, U.Glasg., whom the Council had found to have left unqualified assistants in charge of poisons. Dr. Hamilton brought evidence that he had closed the dispensary from which poison had been unlawfully sold. The solicitor for the Pharmaceutical Society, Mr. W. Quarrel, brought forward no further facts concerning this respondent, and the Council decided not to erase his name.

Concerning Dr. Crombie, however, Mr. Quarrel brought further evidence, that an inspector had seen a witness buy a tin of "Rankin's ointment for destroying vermin on the head," a scheduled poison, from the same assistant who had sold the lysol which was the subject of the original charge. In defence, Miss Jean Dougan, the assistant, testified that since Dr. Crombie's appearance before the Council in May, some of the poisons had been put under lock and key and the remainder removed to the shop of Mr. T. F. Armstrong, a chemist. She had been instructed to sell nothing containing poison. At that time no Rankin's ointment had been in stock, and she had only ordered two tins to be made up by Dr. Crombie's regular chemist in order to meet an inquiry for it made two days before the visit of the inspector. She had only told Dr. Crombie of her mistake after the sale, and he had promptly returned the other tin. She had thought she might sell the tin, labelled poison, because it was for external use. She was no longer employed by Dr. Crombie, and the shop now belonged to Mr. Armstrong. The witness who had bought the tin was not the person who had ordered it. Mr. Quarrel denied that the Society knew anything about the order. Mr. Armstrong, in evidence, confirmed that he had supervised the removal and segregation of poisons in May, and had advertised, on the instructions of respondent, for a qualified female assistant, but had had no suitable replies. He had asked his wholesale dealers to find him a qualified employee, with no more success. Miss Dougan had therefore been retained, and all possible precautions taken. Dr. Crombie had asked witness to take over the shop in May, but witness had temporised until the ending of his financial year. An agreement had been actually drawn up to transfer the shop on Oct. 1st, and, although this had not been signed, witness had been responsible from that date and had been taking the receipts. He had warned his assistant to send no poisons up to the dispensary, and the Rankin's ointment had been supplied by a mistake. This preparation was very seldom used. Cross-examined, he admitted that the assistant's salary had been paid by one of the medical partnership during October, but for his convenience.

Mr. O. Hempson read affidavits from the respondent's partner and the clerk to the local Insurance Committee that, but for the contract with the Committee, the firm would have given up the shop after the first complaint. As it was, the transfer to Mr. Armstrong had been completed before the sale of the ointment. Respondent gave evidence corroborating that of the other witnesses, and stated that he had, on the very day of the sale, asked Miss Dougan whether she was handling any poisons. He had not heard of the ointment until after the sale. If the actual buyer had been known to the girl, witness would have made every attempt to recover the box.

He had instructed Mr. Armstrong to supply no poisons direct to Miss Dougan. He had tried to make "a water-tight compartment, but it had leaked." Mr. Hempson read testimonials to the respondent's character and conduct, and outlined the comprehensive steps he had taken to prevent the sale of poisons in his shop. The Council decided not to erase Dr. Crombie's name from the Register.

On consideration of Mr. Gelfer's representations and evidence to character and conduct, the Council decided that his name also should remain on the Register.

WEDNESDAY, NOV. 23RD.

The Case of Cecil John Rhodes Morrison, registered as of Trumisgarry, Lochmaddy, North Uist, L.R.C.P. & S. Edin., 1925, L.R.F.P.S. Glasg., 1925. Respondent appeared before the Council on the following charge :—

That you were on Feb. 22nd, 1927, at the Sheriff Court, Edinburgh, convicted of the following offence—namely, of recklessly discharging three shots from a revolver loaded with ball cartridge and wounding two persons to the effusion of blood, and were sentenced to four month's imprisonment.

He was not represented by counsel. The Council's solicitor explained the facts. Respondent had become intoxicated celebrating the New Year with some friends, and when he returned home his brother-in-law had accused him of being drunk. Respondent had become angry, and after words and blows had been exchanged he had fetched a revolver and shot at random round the room, wounding his brother and sister-in-law and missing only his brother-in-law. After this, being confused, he had changed his clothes and walked off with his violin on tour. He had slept in the Pentland Hills and found himself in the morning 21 miles from Edinburgh. On returning to the house and hearing that the police were asking for him he had proceeded to the police-station and had been arrested. At an interview, at which the Council's solicitor had warned him that the Council, whatever they thought about the shooting, would think still more of the habit which had caused it, respondent had promised to abstain from alcohol in future. On hearing respondent express his contrition and good intentions the Council decided not to erase his name.

The Case of Vernon Raymond Joseph De Boissière, registered as of 5503, Wellington-street, Verdun, Montreal, M.R.C.S. Eng. 1923, L.R.C.P. Lond. 1923. This practitioner was summoned on the following charge :—

That, being a registered medical practitioner, you abused your position by committing adultery with Mrs. Annie Dee, a married woman, with whose family and household you stood in professional relationship, of which adultery you were found guilty by the decree of the Probate, Divorce and Admiralty Division (Divorce) of the High Court of Justice, dated Jan. 12th, 1927, and made absolute on July 25th, 1927, in the case of Dee *v.* Dee and De Boissière, in which you were the co-respondent.

And that in relation to the facts so alleged you have been guilty of infamous conduct in a professional respect.

The Council's solicitor obtained leave to amend the charge by the insertion of the following words after the first paragraph :—

And/or that being a registered medical practitioner, you abused your position by committing adultery with Annie Dee (a married woman) subsequent to the date of the service of the petition presented in the said divorce proceedings following and arising out of the friendship which you had formed with the said Annie Dee during the period of such professional relationship.

The Council's solicitor opened his case by reading extracts from the statutory declarations produced in evidence at the hearing before the High Court. Mr. Dee had there deposed that he had made Dr. De Boissière's acquaintance in March, 1926, and had called him in to attend his family professionally. From about May his wife's affection for him had begun to change, but he had had no reason for suspicion. On August 8th he had been sent for to the doctor's surgery, where Dr. De Boissière, his wife, and Mrs. Dee had been present. Mrs. De Boissière had stated that her husband had confessed to being in love with Mr Dee. Witness had suggested that it was an infatu tion, and the doctor had replied : "No, it has go further than that." Witness had never lived with h wife again and had filed a petition for divorce. T chief evidence on which the decree had been grant had been that of a girl relative, who had testified the compromising conduct of the parties ; th evidence, said the Council's solicitor, he rath discounted, as it contained details which it w unlikely that the witness could have observed. D De Boissière, in an affidavit, had denied adultery a had stated that Mrs. Dee was hysterical, had haunt him, and had constantly summoned him witho cause ; he had done his best to break off relatio with her. When the petition had been served up him he had, acting upon wrong judgment, given his practice and gone to Canada. Two days befo the boat sailed Mrs. Dee had booked her passage al and had travelled on it as well, but she had be prevented from landing by the immigration authoriti During her return voyage, added counsel, she h written to her husband expressing great distress a regret, and asking for a reconciliation.

Mrs. Annie Dee, in examination, stated that s was living with her mother. She had first met D De Boissière at Amiens in 1918, before he w qualified ; she had been in the W.A.A.C. They h not been particular friends. She had met Mr. D in the same place. She had lost sight of the doct until March, 1926, when she had taken a cousin consult him, and only remembered him after so minutes' conversation. Dr. De Boissière had sub quently attended witness's husband and son. Witn denied that she had attempted to commit suicide his surgery, but admitted that she had becom hysterical after her baby had been taken away fr her on August 9th, the day after she and her husba had parted and after the interview between t families in the surgery. She did not remember wh words exactly the doctor had used to Mr. Dee abo his relationship with her. She denied having ask Mrs. De Boissière to hand over her husband to h but said that Mrs. De Boissière had announced h intention to go back to her mother in the States, a advised her, witness, to go to Montreal with t doctor, and had offered to help her in settling the Mrs. De Boissière and her sister had been in t Canadian Pacific office at the same time as witn and the doctor when he booked his berth, and he h also booked one for witness ; this had been four wee beforehand. He had paid her passage. She had "r exactly" meant to set up house with the doctor Canada ; she supposed she would have had to wo They had corresponded regularly up to April, a she had brought some of the letters with her. Althou they had been great friends, more than doctor a patient, immoral relations had only started after husband had left her and divorce papers had be served. Asked if she had had any affection for t doctor before that, she said that she could har say.

At this point the Council's solicitor proposed to a the witness to produce some letters which she h brought with her. Mr. Slade objected ; copies these documents had not been shown to the defe and their contents were unknown. He did not fo moment imagine that they contained admissions adultery post petition, but if they did, and he h seen them, he would have conducted the case ve differently. In the High Court they would not admissible. The President ruled that the Council w entitled to hear the opening words, but not t substance, of the letters.

The Council's solicitor, after pointing out that t tenour of the accused practitioner's affidavit was t he had been unable to shake off Mrs. Dee with leaving England, and that he was building up practice in Montreal and living with his wife a children, read the opening paragraphs of the lett One began : "My darling sweetheart Nance." T letter was dated Nov. 23rd, and expressed gr

ffection ; the writer spoke of " sacrificing his career " r the recipient and of sending someone over to ask she would still have him. Another, dated Oct. 26th, 926, began " My own darling sweetheart," and the eginning of a third dated April 24th, 1927, was ouched in the same terms. None of them appeared have any signature or ending.

Witness, in answer to the Council's solicitor, stified that these letters were in Dr. De Boissière's ndwriting. Envelopes were also produced.

Cross-examined, Mrs. Dee admitted she had used r maiden name before the decree nisi had been nounced. She stated that it would be incorrect to y that her friendship with Dr. De Boissière had not iginated when he had first attended as her medical viser. Asked whether her adultery with him had t arisen out of a friendship commenced many years fore the professional relationship began, she said e used the word " friendship " in contradistinction " sweethearts, or something like that." She denied ultery before the petition, but declined to answer e question of whether it had occurred on the boat ing to Canada. She admitted she did not wish the uncil's solicitor to understand that it had. Asked y she had written to her husband asking for a onciliation and regretting her action, she replied at she supposed the voyage and the gale at sea had set her ; the expression " it nearly broke my art " referred to her parting from her child. She s prepared to swear that Mrs. De Boissière had vised her to go to Canada with the doctor much er than August 8th. She denied that the doctor had ared his cabin with another man ; he had objected having to share it and had been allowed to change. e had shared her cabin with another woman. Her th had been reserved some four weeks before the ling ; she had not said Mrs. De Boissière had been sent with them, but that she had been in the same lding.

Mr. Slade : When did you first start to become sterical ?—I can't remember that, can I ?

think you told us that your baby was taken away m you on August 9th ?—Yes.

And did you then start to become hysterical ?— e second time, yes.

When was he taken away from you the second e ?—About a fortnight after that date, but I can't member much about it. I was ill ; I can't remember exact date. Witness added she had been ill for ny days after that.

Tell us when you allege that misconduct took place ween you and the doctor for the first time.—I don't member. When pressed the witness said : After the orce papers were served ; is not that near enough ? sailed on Oct. 7th, so it must have been some e between those two days. Her husband, she said, not continued to employ Dr. De Boissière as his fessional attendant after August 9th. Questioned, stated that on one occasion she had found her sin, the witness for the petitioner, in her husband's s, and her cousin used often to go into his bedroom. had, however, suspected nothing. She had atened to defend the suit, but it was not true that husband had said : " You must not do so because will bring your cousin's name into it." When d with her statutory declaration, in which a age to this effect occurred, she explained that her on for making this statement had been that her band had gone home to her people and she was cut rom them. It was just local gossip. The cousin, however, come back to be near her husband. ed whether her husband had remarried she said knew nothing of him.

ow many times did you see the doctor between interview of August 8th and Oct. 7th, when you sailed ?—More or less every day.

here do you say this misconduct took place ?— pressure) In a friend's flat.

nd what is the name of the friend ?—I am not g to say that.

ow many times did misconduct take place ?—I d not tell you.

So you cannot tell us the date, nor how many times, and you say it was neither in your own flat nor in the doctor's house. And it is on those grounds that you are asking this court to understand that Dr. De Boissière committed adultery with you ?—No. I said that my last wish was to see Dr. De Boissière struck off the Register.

Re-examined, she stated that her husband had given her no money on parting, but that Dr. De Boissière had paid her passage ; not at the time of booking but by a cheque given the day before the boat sailed.

Questioned by the Legal Assessor, witness stated that Dr. De Boissière had been attending her family as their doctor between March, 1926, and August 9th in that year, and had attended her boy nearly every day. A member : How do you know that the letters are actually by Dr. De Boissière ?—Mr. Harper : The lady has sworn that she recognises the handwriting. Member : But three of them are unsigned.—The President : It is not proved that they are by Dr. De Boissière at all. Mr. Harper : Except that the witness has proved it on oath. Member : Are all the notes in the same handwriting ?—Yes. Member : And where do they come from ?—Montreal.

Counsel for the accused practitioner submitted that if Mrs. Dee's evidence was accepted it cleared his client of adultery before August 8th. The affidavits used to support the petition were questionable, as the suit had not been defended. He tried to hold that there had been no contractual relationship with Mrs. Dee, but the President ruled that this was irrelevant. The charge was one of abuse of professional position and did not depend on the contractual situation. Mr. Slade reminded the Council that the practitioner's affidavit had dealt with the allegations made in the petition, but not with those made that day.

Mrs. Hilda Theresa De Boissière, examined in chief, testified that she was living happily in Montreal with her two children and her husband, who was in practice there. The last entry in the day-book had been on August 5th, for Mr. Dee's son. Apart from August 8th, when Mrs. Dee had come to the house, respondent had not attended the family. After that date he had been much against any further visits to or from Mrs. Dee. At the interview at the surgery on August 8th, between the two couples, witness had not heard any words from her husband to the effect that he had committed misconduct with Mrs. Dee. Witness had seen Mrs. Dee about half a dozen times ; she had called in June and asked witness to tea. Witness had not been inclined to be friendly ; frankly, she said, on account of Mrs. Dee's reputation. Mrs. Dee had threatened suicide in witness's presence, and in that of two other witnesses, and had behaved irrationally, trying to drink the contents of empty bottles. She had said that this was because respondent had ceased to be her doctor. Mrs. Dee had asked witness on August 8th to give up her husband to her ; witness had flatly declined. After the " nitric acid " incident (an alleged attempt at suicide) respondent had said that at first he had been sorry for Mrs. Dee—he had a very sympathetic nature—but that he could not then go out of doors without meeting her. She had made a continual threat of suicide. Her husband's cabin had been also occupied by a gentleman, and Mrs. Dee had shared her cabin with an old lady. Mrs. Dee's passage had been booked the day before the boat had sailed. Respondent had often expressed the wish that Mrs. Dee should not be allowed to land, and witness's sister had succeeded in having her stopped. The letters addressed to Mrs. Dee were actually in the respondent's writing. Witness repudiated Mrs. Dee's statement that witness had advised her to go to Canada with respondent. Witness had gone to Montreal to get the house ready for her husband, not to join her mother in the States. Respondent had joined witness on the day he had landed, and they had lived very happily together ever since, as they had before. She was convinced of her

husband's innocence, and had come from Canada to give evidence for him. Under cross-examination witness stated that her husband had not paid Mrs. Dee's passage. She had not seen his replies to letters threatening suicide. He had asked her advice, as he had been afraid of public censure if the threat was carried out. Questioned by the Legal Assessor, witness admitted not knowing whether respondent had booked Mrs. Dee's passage, nor whether the other gentleman had actually occupied his berth in respondent's cabin. She had offered to help her husband defend the divorce, but he had been afraid of publicity, and Mrs. Dee's suicide, and they had both been anxious to get away to Canada, where they had lived before. Even if he had proved his innocence "it was never very nice"; the stigma would remain.

Mrs. Alexandra Wallace testified that, on verbal instructions given by respondent two days before he had sailed, she had informed the Canadian Pacific office of the affair. She had afterwards heard, she believed from her sister, that Mrs. Dee had been deported, presumably in consequence of the steps she had taken.

This witness was closely cross-examined by the Legal Assessor on her exact reasons for taking this action, and on the precise information she had given to the lady superintendent at the Canadian Pacific Office, and on what steps had then been taken. She pleaded inaccuracy of memory, but re-stated that Dr. De Boissière had told her to have Mrs. Dee stopped if possible, that she had told the superintendent, whom she had met once before when she had visited the office with Mrs. De Boissière to book this lady's passage, that Mrs. Dee was travelling in her maiden name, and that the superintendent had been indignant. She could not remember, she said, whether she had spoken about the divorce proceedings, and did not know what steps the company had taken to have Mrs. Dee prevented from landing.

Counsel for the defence, in his address, said that dealing first with the facts, the learned judge who heard the divorce suit had been asked to accept as evidence of adultery the alleged remark of the doctor at the interview; "No, Mr. Dee, it has gone further than that," an admission which Mrs. De Boissière said had never been made, and which she would have remembered if it had been made. There was therefore no credible evidence of adultery before the petition. Nor did the letter written by Mrs. Dee on her journey home afford any evidence against his client, and if his client had been at the trial it would never have been taken as evidence by the judge and jury. It gave the reason for her distress as the rough weather, and could only have been meant to convey one impression. Its writer was scorned, angry, and vicious, and had been turned back from Canada; she had meant to convey by it that she had committed misconduct on the boat. Mrs. Dee could not, or would not, say when or how often she had acted immorally. The mere fact that she had booked her passage as Miss Davis would have been sufficient grounds for stopping her. Her letter contained the phrase "the wrong I did you." She swore she had done no wrong before the petition. She had not defended the action, obviously because she was pursuing the unfortunate doctor and wanted freedom from her husband. As for the evidence of the girl cousin, it was incredible, and could only have one explanation, that the witness had desired Mr. Dee's attentions. Moreover, it had been material elicited by questions of the most leading kind. Assuming that the doctor was anxious to defend and that Mrs. Dee was anxious not to, his position was impossibly difficult. Every professional man knew that to be "mixed up" in a case was only one shade better than to be actually guilty, and that innocence went for practically nothing. The action of the doctor in leaving the suit undefended might have been misguided, but it was perfectly compatible with his innocence. Mrs. Dee's word was the only evidence against the doctor, and if it were to be believed, it must be taken in his favour as well.

On the second charge, that of post-petition adulter the only evidence was again that of Mrs. Dee. It w upon the instructions of Dr. De Boissière that Mr Wallace, unless this witness was deliberately lyin had had Mrs. Dee stopped. That meant either th the request had been a blind—in which case the doct was an extraordinarily fine actor—or that he had be genuinely anxious to get rid of the woman; this w the only possible explanation. It was natural tha after being slighted in this way, Mrs. Dee shou express some animus. On the question of the profe sional relationship, counsel held that the friendsh had originated in 1918, as Mrs. Dee's declaration ha stated, and that the professional relations had be incidental and had terminated in August, 192 Adultery was not necessarily infamous conduct, and young man who met a woman of far stronger charact who must have wanted him, or she would not have l her husband divorce her, who pestered him a threatened suicide—and who fell into immo relations with her, was not to be classed with a we established man who abused his professional positi to commit adultery.

Mr. Harper, for the Council, said that the friendsh that commenced in 1918 could not be taken in account. The accused practitioner's affidavit contain a very remarkable phrase. "There was no illicit a wrongful relationship . . . at the time complain of"; he had not made the denial absolute. He h been composing the affidavit with the help of his wi who could not have known half the story. T attempts to prevent Mrs. Dee landing must ha emanated, not from the doctor, but from his fami Mrs. Wallace had testified under cross-examinati that the doctor and his wife were not cohabiting, a therefore there must have been trouble between the When the defence had stated that there was evidence except that of Mrs. Dee, they had r referred to the letters, which Mrs. De Boissière h seen that afternoon for the first time. It had be admitted that her husband had read her a paragra of one of the letters that he had written to Mrs. D but not that he had shown her a letter. These lett seemed to him, the solicitor, to destroy any credit t might be placed on Dr. De Boissière's word, and indicate that the charge was well founded.

After the Council had deliberated on the case camera the President announced: "Mr. Slade: I have to inform you, on behalf of your client Mr. Boissière, that the Council have found that the fa alleged both in the first part and in the second p of the charge set out in the notice of inquiry have b proved to their satisfaction and that they h pronounced judgment on the facts so proved. Th judgment is that Mr. De Boissière has been guilty infamous conduct in a professional respect, and th have directed the Registrar to erase from the Regis the name of Vernon Raymond Joseph De Boissièr"

THURSDAY, NOV. 24TH.

The Case of Victor Thomas William Eagles, M registered as of 39, Linwood-road, Bournemou L.R.C.P. Edin. 1912, L.R.C.S. Edin. 1912, L.R.F.P Glasg. 1912. Respondent had been summoned be the Council on the following charge:—

That you were on August 9th, 1927, convicted at Witham Petty Sessions of the following misdemeanou namely, of being drunk whilst in charge of a motor- and were fined £30, ordered to pay £3 10*s.* costs, and qualified from holding a driving licence for two years.

The Council's solicitor said that it was unusual the Council to summon a practitioner for one con tion, but that this had been rather a scandalous c He read extracts from the proceedings before magistrates. Dr. Eagles had turned his car over striking a bank while in a state of intoxication.

Respondent denied drunkenness and pleaded error of judgment in driving. He had driven ag later on the same night. He suggested that the he sentence had been due to the fact that the chairm of the sessions had been a medical man, and he sta

at he had been the victim of police methods. In swer to the President, he admitted that he had sited a number of public-houses and had a reasonable antity of drink. He had pleaded guilty because he d not wanted the lady who had been his companion be summoned as a witness, but had altered his plea hen she was called. The Council, while considering conviction of this kind discreditable to both a actitioner and his profession, decided in view of the arning the respondent had received not to order the asure of his name.

The Case of John Joseph Macabe, registered as of 58, unswick-street, Chorlton-on-Medlock, Manchester, B., B.Ch. 1918, N.U. Irel. Mr. Macabe had been nvicted once of assault and four times of drunken- ss, between 1920 and 1926 inclusive. Respondent mitted that he had committed all the offences but at of assault. He had not been engaged in any ofessional work at the time. Since his student days had been unable to carry drink. He assured the uncil that he had determined to abstain from it, d produced recent testimonials to his good pro- sional conduct from medical men with whom he d been associated. The Council postponed judg- nt until their session in November, 1928, with the stomary proviso and warning.

The Case of Bernard Wilfred Goldstone, registered as 14, Menelik-road, Cricklewood, N.W. 2, M.R.C.S. g. 1926, L.R.C.P. Lond. 1926. Respondent peared before the Council on the following charge :—

That, being a registered medical practitioner, you abused ur position by committing adultery with Mrs. Theresa ris Froomberg, a married woman, with whom you stood in fessional relationship, of which adultery you were found lty by the decree of the Probate, Divorce and Admiralty ision (Divorce) of the High Court of Justice, dated y 25th, 1927, in the case of Froomberg *v.* Froomberg Goldstone, in which you were the co-respondent. l that in relation to the facts so alleged you have been lty of infamous conduct in a professional respect.

The respondent was accompanied by Mr. Oswald mpson, solicitor. The complainant, Mr. Froomberg, s represented by Mr. E. L. D. Zeffert, solicitor. . Zeffert, in his opening address, stated that the y relevant issue was that of whether a professional tionship had existed ; adultery was admitted. plainant, a merchant in the City, had been rried in 1922 and his work took him away from ne one week in three. In August, 1926, during ir holidays at Le Touquet, Mr. and Mrs. Froomberg l stayed in the same hotel as the brother of the used, who was engaged to be married to a sister of s. Froomberg. Dr. Goldstone had spent one night h them on his way to Germany. He had then made acquaintance of Mr. Froomberg and renewed his ndship with Mrs. Froomberg, whom he had known a child. He had on that occasion prescribed a nacetin and caffein powder for her, as she had plained of headache while out walking. Acquaint- eship had been next renewed at the house of Mrs. omberg's mother and continued at parties held he houses of both families. At the end of November s. Froomberg had fainted at her mother's house Dr. Goldstone had been summoned by his brother attend her. Mrs. Froomberg had been in good lth, but subject to headaches and fainting fits : had been under the care of a Dr. Morton, but had suaded her husband to put her under the care of Goldstone as well. It would be proved that Dr. dstone, by reason of his medical qualification, and he request of Mrs. Froomberg, had been allowed ess to the house, her bedroom, and her person. prescriptions had been set out in the statutory laration and another had been discovered since. y were dated Feb. 15th, 1927, March 20th, and l, 1927. Dr. Goldstone had also attended and scribed for a servant in the house in March. ing all this time there had been adultery, and early April Dr. Goldstone and Mrs. Froomberg had gone oad together.

Mr. Joseph Froomberg, examined, confirmed the y as outlined above. He said that his wife had had great faith in Dr. Goldstone's capabilities, but he had had more faith in Dr. Morton. As she had suffered from nervous attacks he had allowed Dr. Goldstone to treat her, in spite of the fact that Dr. Morton had been attending her at the time. He had also visited the house socially.

Replying to the Legal Assessor, he said that Dr. Goldstone's treatment had commenced in November, 1926.

Continuing in reply to his solicitor, he said that Dr. Goldstone had at first attended once in three or four weeks, but later, after January, 1927, perhaps once a fortnight, to his own personal knowledge. He could not vouch for what had happened in his absence. He had left the room when Dr. Goldstone and Dr. Morton had attended professionally, but had been present at social visits.

Cross-examined by Mr. Hempson, witness denied that the discovery of the prescriptions was his only reason for saying that Dr. Goldstone had attended his wife professionally. He agreed that at Le Touquet Dr. Goldstone had not been registered, having just passed his final examination. He repudiated the suggestion that Dr. Goldstone had only attended Mrs. Froomberg professionally on three occasions (the headache at Le Touquet at the end of July, the fainting fit at her mother's in November, and the attack of influenza in March) and also that he had only entered her bedroom once, on the last occasion. He had himself shown Dr. Goldstone into Mrs. Froomberg's room on several occasions, " round about January and February, not very often perhaps, but on one or two occasions." Dr. Morton had been their regular medical attendant and had attended throughout this period. Dr. Goldstone had never rendered an account, though he, witness, had mentioned it several times, approximately every time Dr. Goldstone came to the house professionally. The reply had been something like " no hurry " or " don't bother." Mr. Hempson suggested that it was extraordinary that no mention had been made of these facts in the statutory declaration prepared for the Council. Mr. Froomberg replied that he had very little to do with legal affairs and had signed what his solicitor had prepared. He had declared what he thought was of material importance.

Why, then, did you not include this in your declaration ?—It probably did not occur to me.

There, we have " probably " again.—Because it did not occur to me to include it.

Knowing what you were charging him with ?—Yes. I did not think he would defend the case.

That declaration was made as carelessly and lightly as that ?—I do not think you ought to put it like that.

I put it that that declaration is true as far as the exhibits are concerned ?—What is in the declaration is perfectly true, but that does not say that what I have said now is untrue.

I am suggesting that what you have added to the declaration now is not a fact. You never brought this out in the first proceedings, did you (i.e., before the Divorce Court) ?—It was not necessary ; the only thing necessary to prove was the adultery.

You must take it from me that there is no mention in the petition of the fact that Dr. Goldstone is a medical man ; I am suggesting that it was not mentioned because that relationship has never existed ?—The suggestion is ridiculous.

Witness did not agree that it was a strange coincidence that his statutory declaration only alleged professional attendance during the two months of the dates of the prescriptions, and held that Dr. Goldstone and his wife could not have met socially outside his house more than about once a month during 1926, though they had met more often after January, 1927.

The suggestion is that it was the professional relationship that brought about the friendship ?—That is true. No, I should not say that that was true altogether. It is true of my own friendship with Dr. Goldstone, but I should not think it was true of my wife's friendship.

Did you ever explain to Dr. Morton that somebody else was attending Mrs. Froomberg ?—No, he knew nothing of it.

And he frequently came to the house ?—Yes.

Was this treating Dr. Morton fairly ?—It was not a question of treating Dr. Morton fairly as far as I was concerned. My wife had more faith in Dr. Goldstone and she was of a very difficult temperament.

And yet you never explained that to Dr. Morton ?—No.

If it was true, did it not occur to you that the treatments might not agree one with another ?—Dr. Goldstone was perfectly aware that Dr. Morton was attending to my wife.

But the other way did not occur to you—that Dr. Morton's treatment might be affected by Dr. Goldstone's prescribing for her ?—Dr. Morton offered to prescribe for my wife, but my wife never took the medicines.

Is that your reason for not telling Dr. Morton ?—No, I wanted Dr. Morton to keep an eye on her.

The question I put was this : did it not occur to you that the medicine that was being prescribed by Dr. Goldstone might have handicapped Dr. Morton in his treatment of Mrs. Froomberg ?—It might have occurred—it did occur to me—but I am afraid I did not have my own way in that respect.

And despite that you did not tell him ?—No.

Again I suggest that the reason for that was that there was no professional attendance by Dr. Goldstone.

Witness agreed that Mrs. Froomberg had confessed to adultery from the beginning of December.

Mr. Zeffert produced a letter from Dr. Morton saying that there had been no attendance on Mrs. Froomberg in January or February, but the President refused to admit it as evidence.

Questioned by the Legal Assessor witness said that he had definitely placed his wife under the care of Dr. Goldstone "about January."

The Legal Assessor : That being so I do not quite understand your declaration. It was put to you, you know, that you knew what the declaration was for, the purpose for which it was made ; for these proceedings, and the charge in these proceedings was that Dr. Goldstone had abused his professional attendance on your wife. You knew that that was the ground of the charge ?—Yes.

Will you now kindly look at your para. X. : "In the months of February and March the said Bernard Wilfred Goldstone attended my wife as medical practitioner." Did you mean to imply by those words that that was the only time on which he had attended her ?—No. I might have said "January, February, and March."

You might have said many things. Did you mean to imply by those words that that was the only time that this doctor had attended her ?—No.

Then why did not you declare that you had put her under treatment in the beginning of 1927 ?—The reason for that is that in the early part of 1927 it was just very rarely, perhaps once in three weeks, that he did attend to her. That might have been once in January, but during February and March, which were much more important months, he was in the house once or twice a week.

I want some explanation in answer to my question as to why you merely state there that he attended her in February and March, if you do not mean to imply that that was the only time ?—The reason why I put in February and March was that during February and March he attended her very frequently, whereas previous to that it was the reverse—occasionally. Sometimes a doctor might come and not come again, or you might change your doctor.

Was it because February and March coincided with the dates of the prescriptions that you had found subsequently to your wife's leaving you ?—No.

You exhibited them to point the date when she was being attended ?—Those happened to be two prescriptions found in the house, and naturally I put them in the hands of my solicitors. There were others, I believe.

Knowing the gravity of the charge, you said nothing about putting your wife under the charge of the doctor during January, 1927 ?—No. Perhaps he only visited her once during that month.

In answer to questions put by the President, witne said that he had shown Dr. Goldstone into th bedroom on one Sunday afternoon ; on other occasio he had been out, and could not state the time of da Dr. Goldstone had not sent in a bill for attendance the maid, as this was just before he had eloped. D Morton had not ceased attending Mrs. Froombe during January, February, and March ; he had call once in two, three, or four weeks and was the regular practitioner. He had attended witness a his child, and witness had insisted that he should al attend his wife, and had actually seen her. He cou not remember whether or not he had received account from Dr. Morton. He had sent for Dr. Mort to visit his wife during those three months. He h never sent for Dr. Goldstone in the same capacit Dr. Goldstone had usually come at his wife's reque

Questioned by a member of the Council, through t President : Did he in fact ask Dr. Goldstone to ta charge of his wife ?—I did not ask Dr. Goldstone take charge of my wife medically. My wife asked hi herself.

Did he authorise his wife to have Dr. Goldstone a medical attendant ?—I did.

Mrs. Elizabeth Roots, examined, said she had be house-parlourmaid in Mrs. Froomberg's house duri the winter of 1926–27. She had admitted D Goldstone to the house. Sometimes he had be treated as other visitors and sometimes he had co as a doctor ; she thought he was a doctor on the occasions because he had brought his bag. He h attended Mrs. Froomberg in her bedroom constant for one week, and occasionally at other times. D Morton had also called and seen Mr. Froomberg January and February.

Cross-examined, witness said she had shown D Goldstone to Mrs. Froomberg's bedroom about two three times in the week of constant attendance, ju before Easter. Pressed, she said she had shown hi to Mrs. Froomberg's bedroom altogether about a doz times. She could give no precise dates.

There was no statutory declaration from this witne

Mr. Hempson put it to her that she had only sho Dr. Goldstone to Mrs. Froomberg's room on o occasion. She replied : "I showed Dr. Bernard more than once."

Replying to the President, she said Dr. Goldstone h usually called about tea-time, and Dr. Morton in t morning.

Miss Beatrice Ashby, cook at Mrs. Froomberg house, described Dr. Goldstone's attendance on hers at the end of March.

Dr. Goldstone, examined by Mr. Hempson, sa that he was 24 years old and that he had known M Froomberg as a child. He had renewed the acquai ance at a party held at her mother's house to celebra the engagement of his brother to her sister. He h then met Mr. Froomberg. About a fortnight later had been invited to a party at their house. They h subsequently met at the weekly "At homes" of th respective mothers, and again at Le Touquet August 3rd, 1926. He was then unregistered, thou qualified. He had given her a prescription phenacetin, aspirin, and caffein while walking alo the road, there had been no consultation, and no qu tion of remuneration. He had seen them fairly f quently after his return from Germany in Septemb and had become friendly with Mr. Froomberg. O night in November he had been working at ho when a telephone message came from his brother th Mrs. Froomberg had fainted at her mother's hou He went round, but she had recovered, and he gave prescription. Mr. Froomberg, witness's brother, a witness had taken her home in a car and carried h up to her room. He had never regarded himself her medical attendant. When, on a very few occasio Mrs. Froomberg had talked to him about her hea he had always asked why Dr. Morton had not be consulted. On one or two occasions they had be unable to obtain him ; on others they had said had not been called in, but witness had subsequen discovered, to his annoyance, that in fact he had be

mmoned. His attendances on Mrs. Froomberg, in y sense professionally, certainly would not run into o figures. The prescription dated Feb. 15th, 1927, s one for ergot and sulphuric acid ; Mrs. Froomberg d complained to him of menorrhagia, when he was ving tea with her that day, and had asked him he could do something for her, as she was feeling ther bad. There had been no subsequent attendance. that time he was attending at the hospital out-tient department ; he had done a locum for three eks at the beginning of the year, but had otherwise d no professional work. The second prescription, ted March 20th, was a simple diaphoretic (pot. acet. d inf. buchu). He had been rung up by someone—t Mrs. Froomberg herself—to ask him to call and her. He had asked about Dr. Morton and they had d they had been unable to get him. He had seen s. Froomberg in bed and found she had influenza. had stayed to lunch with Mr. Froomberg. Three ys later he had prescribed a tonic for her. This scription was dated March 23rd and contained ct. nucis vom. and liq. arsenic. He could not recall y other professional services to Mrs. Froomberg, ugh he admitted there must have been some. ey were isolated and unimportant incidents, such headaches, mentioned while he was visiting socially. had often visited socially, but it was impossible t he could have visited professionally often ; there been no protracted illness other than this influenza matter of two visits. He had known that she was ler the permanent care of Dr. Morton. It had er entered his head to send in an account for these vices, and Mr. Froomberg had only mentioned a once. He had said " I suppose I ought to pay for this," and witness had replied " Nonsense." was honestly of the opinion that he had never n sent for professionally on any occasion other n those mentioned. It was absolute nonsense to that he had been shown to Mrs. Froomberg's room on 12 occasions. He had met Mr. Froomberg quently during this period, at his house and at the ses of witness's mother and Mrs. Froomberg's her. He had visited Miss Ashby in her room after aint, accompanied by Mrs. Froomberg, and had ured her admission to the Middlesex Hospital. ercourse had first taken place between Mrs. omberg and himself in the beginning of December. en he had first found that he had formed an attach-t for her he had wanted to go away at once, but had refused.

ross-examined, he put the date of the first adultery Dec. 3rd, which was before Mrs. Froomberg's ting fit. It had occurred at Mr. Froomberg's se, in the late evening.

his was on the occasion of a social visit ?—It ainly was not a medical visit.

s far as the servants were concerned ?—I never d the servants' opinion of it at all.

n what part of the house did it take place ?—nstairs.

fter the servants had gone to bed ?—I never ced.

re we agreed that up to that time Mr. Froomberg's aintance with you was of the slightest nature ?—we are not agreed.

ill you tell me when your relationship with Mr. omberg became of a friendly nature ?—That is a l thing to define.

put it to you this way, that from and after the of the fainting fit, until you went away with Froomberg, you were as an honoured guest in ouse, and he treated you as their friend. And it erfectly true that, during the whole time, you seducing his wife, and do you know that the ital relationship between husband and wife was ectly normal as far as Mr. Froomberg was aware ? knew nothing about it.

ou knew at that time you were deceiving Mr. omberg ?—Yes.

ou have betrayed his hospitality ?—Yes.

he case against you is that you were using your ical qualifications to deceive Mr. Froomberg and the two servants to obtain access to the person of Mrs. Froomberg ?—I did not know that was the case against me.

But you will agree with me that Mr. Froomberg, by reason of your medical qualifications (and the two servants), permitted you free access to the person of Mrs. Froomberg ?—Not by reason of that.

Do you think, Sir, that if you were an ordinary member of the public you would have been admitted to the person of Mrs. Froomberg ?—I am certain of it.

Do you agree that Mr. Froomberg is a clean-living man ?—I know nothing about Mr. Froomberg's private life.

You have heard nothing from Mrs. Froomberg about it ?—No. I would not be bothered about that sort of thing.

Pressed to cite something from Mr. Froomberg's evidence that was untrue, witness pleaded poorness of memory, and finally quoted the statement that witness had visited his wife professionally many times. Although pressed, witness said he would stand or fall by his statement that it was not Mrs. Froomberg personally who rang him up on the Sunday of the influenza attack, and that if he had visited her on March 21st or 22nd her husband had been in the room at the time.

Do you mean to say that those servants would have allowed you the run of the house if you had not been a doctor ?—They only started calling me " doctor " after I had treated Miss Ashby.

But you did not treat Miss Ashby until you had determined to take Mrs. Froomberg away with her husband's money ?—I did not take Mrs. Froomberg away with her husband's money.

Did you go away with your own money ? Did you support her ?—Yes.

Solicitor then produced a small diary. Mr. Hempson pointed out that he had not hitherto seen this exhibit, and was allowed to examine it.

You have received letters from Mrs. Froomberg ?—Two, I think.

Is that Mrs. Froomberg's handwriting ?—I don't know. I dare say it is. I have not seen enough of her handwriting.

Do you swear that you do not know her handwriting ?—" Know " is a word I do not understand. If you wrote to me I could tell it was not Mrs. Froomberg's handwriting.

Look at that handwriting. Just answer me, Is that Mrs. Froomberg's handwriting ?—I do not know.

You have seen her write letters ?—I have not watched what she has been writing.

And you expect this Council to believe that you do not know her handwriting ?—I do not expect things to be believed or not. I am speaking the truth.

In answer to Mr. Hempson, witness said that he was known to the maids as " Mr. Bernard " up to the date when he attended Miss Ashby, and after that as " Dr. Bernard."

In answer to a question through the Chair, witness said that he had made no physical examination when he had prescribed the ergot mixture.

The President : Have you got into the habit of ordering ergot for lady friends who are not your patients ?

Witness : No, Sir. As a matter of fact, I looked up the dose in my Pharmacopœia.

Mrs. Theresa Doris Froomberg, examined by Mr. Hempson, confirmed the evidence given by Dr. Goldstone.

It has been put by Mr. Froomberg that in December or January you asked that you might be attended by Dr. Goldstone as your doctor. Is that correct ?—No.

Was he your doctor at that time ?—No.

It has been said also that he visited you professionally about once in three weeks, throughout January, until about the middle of February, and thereafter two or three times a week, professionally. Is that correct or incorrect ?—It is quite incorrect.

It is also said that on 12 occasions he was shown up to your room by your housemaid during that period

of three months. What do you say to that ?—That it is not true.

She described the circumstances under which the prescriptions had been given in the same terms as Dr. Goldstone had done.

Do you remember being ill on March 20th ?—Yes.

What steps did you take to get medical attention ?—I was in bed in the morning. My little girl's nurse came to see me. She said I did not look well, and she took my temperature, which was about normal, and said I had better have the doctor. She tried to get Dr. Morton and he was out. Then she telephoned to Dr. Goldstone.

The President: Did you tell her to ?—Yes.

Under renewed examination witness said Dr. Goldstone had visited her again on the Monday and on the Wednesday. The only other medical services rendered by him were on the occasions of fainting attacks occurring when he was present. It was not true that he was attending more or less regularly throughout that period as her medical attendant. She did not look on these services as professional in the sense that they were to be remunerated. He had attended Miss Ashby as a doctor. He had always been known to the maids as "Mr. Bernard."

Under cross-examination, witness identified her handwriting in the diary and said the entry was written out at the time. Solicitor read out the entry of March 20th: "Felt rotten this morning, so rang Bernard up and he said I had flu. Joe played golf. Bernard stayed to lunch. Joe and Bernard went up West together, and did not return till 6." March 22nd: "Bernard came in to see me early this evening. I can go downstairs to-morrow."

Would you describe Mr. Froomberg as an ordinary clean-living business man, leading an ordinary life, truthful, honourable ?—Yes.

Mr. Hempson: In spite of that would you say that the evidence given by him to-day was true ?—Yes, except for the question of attendances.

Did you or did you not send for Dr. Goldstone for that trouble on the 26th (March) ?—I did not.

Why not ?—Dr. Morton was my medical attendant.

He was available when you rang ?—Yes.

Can you tell me of any other date whereon it is recorded (in the diary) that Dr. Goldstone attended you professionally ?—I can't.

Or in a medical capacity ?—No.

In answer to a question through the Chair witness said that sexual relations began at the end of November or the beginning of December, before the date of the fainting attack at her mother's house.

This closed the evidence. The two solicitors addressed the Council on Friday, Nov. 25th, and after deliberation in camerâ the President announced the verdict in the following words:—

"Dr. Goldstone, I have to announce to you that the Council have found the convictions alleged against you in the Notice of Inquiry to have been proved to their satisfaction. They have found you thereupon to have been guilty of infamous conduct in a professional respect, and have directed the Registrar to erase your name from the Register."

The Case of Harry Simpson Harling, registered as of 102, Skipton-road, Ilkley, L.R.C.P. Edin. 1909, L.R.C.S. Edin. 1909, L.F.P.S. Glasg. 1909. This practitioner was also charged with abusing his professional position to commit adultery. He did not appear in answer to his notice, and the Council, on hearing the representations of his legal adviser, adjourned the hearing of his case until their May session next year.

The Case of Robert Moore, registered as of 34, Mawney-road, Romford, M.B., B.Ch., M.D. 1905, U. Dubl., and *the Case of John McGhee*, registered as of Station-road, Galston, Ayrshire, M.B., Ch.B. 1923, Glasg. Both these practitioners had convictions proved against them of being drunk in charge of motor-cars; Mr. Moore had been also convicted of driving to the public danger on another occasion, and Mr. McGhee of drunkenness. The Council suspended judgment for six months in each case.

FRIDAY, NOV. 25TH.

REPORTS OF COMMITTEES AND OTHER BUSINESS.

Restorations.

After consideration in camera, the Council decid to restore to the Register the names of Willi Lloyd, registered as of 58, Brook-street, W. Sydney Edgar Price, registered as of 77, Lov Hollyhedge-road, West Bromwich, Staffs; a George Joseph Mary Fraser, registered as of Fitzwilliam-place, Dublin, erased under the pe section of the Medical Act.

Removal of Name at Practitioner's Request.

The name of Henry Bown, registered M.R.C.S. E 1926, L.R.C.P. Lond. 1926, was removed from Register at his own request, on the ground that had ceased to practise.

Nominations to Committees.

Education.—Sir Farquhar Buzzard and Dr. Lorr Smith, nominated by the English and Scottish Bra Councils respectively, replaced Mr. Thelwall Thon and the late Dr. H. Littlejohn.

Examination.—Dr. J. S. Stopford replaced R. B. Wild as representative of the English Bra Council.

Public Health.—Dr. Lorrain Smith replaced late Dr. Littlejohn as representative of the Scott Branch Council.

Education Committee.

The Chairman of the Education Committee, Humphry Rolleston, laid before the Council Friday morning, Nov. 25th, two important repo one on the amended regulations for the registratio students, and the other on the progress made throu out the country towards the readjustment of medical curriculum in accordance with the resoluti of the Council passed on May 26th, 1922. The sec of these reports is a pamphlet of about 200 pa and contains the replies of all the licensing corp tions to the Council's recommendations, with comments of the Education Committee thereon. the bodies, with the one exception of St. And University, have modified their curricula as a re of the suggestions of the Council. After a sli discussion of details both reports were adopt the second is to be sent to all licensing bodies, their observations embodied later in another do ment. In another issue we hope to deal more f with this important subject.

MEDICINE AND THE LAW.

British Medical Association v. *The "Daily Ne Limited.*

IN the King's Bench Division, before the Lord C Justice, on Nov. 29th, this case was mentioned, w it was announced that the action had been sett the defendants agreeing to publish a disclaimer.

The defendant company are the proprietors of *Star* newspaper, and on Sept. 2nd, 1926, the follow article appeared:—

Our American cousins have an expressive figure of sp about the man who "bites off more than he can ch It might be applied with justice to the British Me Association. While it confined its oppressive activitie bone-setters and other unregistered practitioners who c be dubbed quacks without fear of legal reprisals it was to get away with it. Any criticism of its conduct coul contemptuously swept aside as the uninformed preju of the mere layman. When, however, it tried to disci distinguished members of its own body it did in fact off more than it could chaw. Sir William Arbuthnot L the President of the New Health Society, is the case in p at the moment. The B.M.A. does not like the society its motto is "Prevention rather than cure." To pr "health without doctors" is the unforgiveable sin to medical monopolists, who have in the past imposed a rigid etiquette of secretiveness on their close profes Sir William appears to have had the courage to defy t

ut-of-date conventions, and, contemptuous of the B.M.A.'s ower to strike him off its register, is reported to have struck mself off. The B.M.A. can do—just nothing.

Mr. Stuart Bevan, for the British Medical Associaon, described that article as seriously defamatory the Association, and of its policy and of its methods, e whole of the comments being entirely unjustified. n the institution of proceedings, without waiting r the action to come to trial, the defendants' advisers bmitted to the plaintiffs the following statement hich was read in court :—

It has been pointed out to us that an article published the *Star* of Sept. 2nd, 1926, on the subject of the New ealth Society and the retirement of Sir William Arbuthnot ne (first President of that Society) from membership the British Medical Association, has been construed imputing improper motives and behaviour to the British edical Association—particularly that the Association s oppressive upon medical practitioners, registered as ll as unregistered; that its hostility to the educative thods of the New Health Society arose from a desire to event any improvement in the public health because is would involve loss of fees to medical men; and that e Association was actuated solely by the desire to benefit e medical profession without any regard whatever to public alth or public interest.

We disclaim the intention of making any such imputaons, and we are fully satisfied that such a conception of e work and outlook of the British Medical Association uld be wrong in fact and unjust; and we regret any ong impression which the publication of the article may ve created.

Mr. Bevan then pointed out that the Associaon has itself been much concerned—and has used research work to be undertaken—in the evention of disease. Mr. Norman Birkett, for e defence, said that he agreed with the statement the terms of settlement.

His lordship indicated his assent to the discontinuance of the action, each party being content to ar its own costs.

Damage from Horse-bite.

If a horse bites other horses is it to be deemed ely to bite human beings? The old idea that an imal is "allowed one bite" received fresh illustran lately in the High Court in the following circumnces. A man was crossing Ludgate-hill and passed front of a stationary horse and van which were at e moment unattended. The horse was muzzled, t stretched out its head and made for the passenger's ad, thereby injuring his face. Evidence (to prove at lawyers call the *scienter*) was called to establish t the horse had previously bitten another horse. jury in the Mayor's and City of London Court arded the plaintiff £25 damages, but the judge ve judgment for the defendants, and the High Court s confirmed his view. The jury had found that the rse was dangerous to other horses and also to nkind, but no evidence had been given to show t a horse which will bite another horse is likely to e a human being. People, said Lord Sterndale, R., in Manton *v.* Brocklebank four years ago, are safe in acting upon what they believe to be mmon knowledge without evidence. Lord Justice utton quoted this remark with approval and led that horses are subjects upon which people en disagree.

The plaintiff put his case in this way. Horses, as know them in the London streets, do not bite. ce you find a biting horse, you find an animal which outside its class, and therefore must be deemed ngerous in the sense that its owner keeps it at his il and is liable for any damage it may do. But, d the Lord Justice, there is no legal authority for proposition that, if an animal is known to be ngerous in one particular way, its owner thereupon comes liable for any other kind of damage it may do, wever unexpected or unusual.

Friendly Society's Convalescent Home and Income-tax.

The Royal Antediluvian Order of Buffaloes has ablished a convalescent home at Redditch largely by subscriptions from within the Order. It is supported by the general funds of the Order, and the beneficiaries must be members of the Order, though only 20 or 30 patients out of 2,000,000 members could be accommodated at a time. The General Commissioners of Income-tax made an assessment of £180 gross (£146 10*s.* net) on the premises, but Mr. Justice Rowlatt has ruled that it is a "hospital" within Rule 1 (*c*) of No. VI. of Schedule A of the Income-tax Act. The Solicitor-General, who appeared for the Inland Revenue, seems to have admitted that the fact of the institution covering only a small field of hospital work did not prevent its being a "hospital." But the Crown argued that the home was really a private establishment which the Buffaloes could close at any time and that there was no such element of public charity about it as would entitle it to exemption from tax. The judge said it was unlikely that the activities of the home would be stopped and the profits thrown into the general funds of the Order. The home was an eleemosynary establishment maintained by the Order for the benefit of a few of its members. The fact that it was limited to members of the Order made no difference. A hospital established for the members of a profession or trade was not prevented from being a hospital within the meaning of the statutory exemption.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

German Orthopædic Congress.

THE German Orthopædic Society, at its annual meeting in Nuremberg, devoted considerable attention to arthritis. Prof. Heine (Rostock) opened a discussion on arthritis deformans, which, he said, is found most often in the knee-joint and less commonly in the elbow, hip, and shoulder. The knee is never affected before the fortieth year, and the hip before the fiftieth. Up to the age of 60 the disease is more often seen in men than in women. Pathologically it is a peculiar condition of the mesenchyma, depending on age and constitution. Dr. Krebs (Aachen) pointed out that X rays do not always reveal the cause of the pain, since it is often due to alterations of the joint-capsule and of the subchondral tissue. He considered that muscular atrophy is a result not of inactivity but of atrophic disturbances of a specific character. Hyperæmia is, he said, the essential curative agent, and may be produced by mud or other baths; after treatment at Aachen, 64 per cent. of the patients are able to work. Prof. Vulpius (Heidelberg) said that when the capsule was contracted the joint should never be extended with vigour, but very cautiously. Prof. Spitzy (Vienna) advocated stretching of contractions by a single manipulation. The aim of an operation should be ankylosis in the knee-joint but mobility in the hip. Dr. Kruz (Berlin) said that in women arthritic pain in the knee-joint usually develops between the fortieth and fiftieth year, a fact probably connected with diminished resistance at the climacteric and the increase of weight at that period. In the more acute cases fixation of the joint, in chronic cases a Hessing apparatus, and in less serious cases medico-mechanical treatment, is required.

In a discussion on scoliosis, Prof. Galeazzi (Milan) explained his method of curing scoliosis by gypsum dressing in stages on a special table in the horizontal position. Dr. Gaugele (Zwickau) said that old-standing scoliosis is the result of fixation and of compression, caused by the weight of the trunk, relaxation of muscles and ligaments, and general weakness. Whilst the fixation is not remediable, compression may be influenced by a gypsum dressing; in debilitated persons gymnastics are useful. Dr. Valentin (Hanover) spoke on heritable orthopædic conditions, and said that brachydactylia, syndactylia, Dupuytren's contracture, chondrofibromatosis, and a

tendency to habitual luxation of the shoulder are often hereditary. Dr. Maus (Berlin) referred to the familiar occurrence of club-foot. It is not yet ascertained, he said, why this condition is more frequent in males than females. Dr. Brandes spoke on retarded consolidation after osteotomy, which had occurred in 6 per cent. of his 4485 operations, and in his view had local causes. Dr. Simon (Frankfort) said that this retarded consolidation is fairly common in women between the ages of 18 and 25, and is caused by reduced vitality of the sclerotic bone. Dr. Königswieder (Vienna) agreed with this statement, and advised his hearers to abstain as far as possible from cosmetic operations at that age. He believed that endocrine troubles were responsible for the retardation.

Prosecution for Injury by Neglect.

Some time ago a medical man and a nurse were found guilty of injury by neglect because the nurse had forgotten to apply the filter in using X rays for curative purposes, the result being a severe burn. The court considered that it was the doctor's duty to ascertain whether the nurse had applied the filter; he had, however, left the room after having adjusted the apparatus. On appeal the High Court in Leipzig has cancelled the verdict so far as the medical man is concerned. It regards the application of X rays as a merely technical procedure, including the use of a filter in every case, and holds that the medical man was justified in believing that it had been employed in this particular case as in any other. Administration of X rays may be likened to that of a poisonous drug; it requires certain precautions, but is, as a rule, entrusted to trained nurses, no medical man being expected to supervise their administration personally if he has assured himself that the nurse is trustworthy. The case has, however, been referred back to the local court, because it had not been made clear whether the nurse was or was not sufficiently experienced to be left in charge by the doctor.

Dental Treatment in Russia.

Prof. Dauge, of Moscow, in a paper recently read before the Society of Socialist Medical Men, explained that in Russia dentistry is regarded as a special branch of general medicine like other branches, and that the dentist is expected to be familiar with medical science as a whole. In Leningrad and other places there are stomatological clinics with large staffs where some 9000 dental surgeons have already been trained. Whereas in Leningrad there were, five years ago, about 500 private dentists, there are now only 50. Dental treatment is carried out at 12 great dispensaries maintained by the State, where the working time of the medical man is only five hours daily.

Insurance against Accidents.

According to a recent statistical report there were in 1925 837,695 industrial concerns whose employees were insured against accidents, under the Workmen's Insurance Act, to the number of 11 millions. There were also 4,601,916 agricultural enterprises with 14 millions of workers, and 880,194 employees of the State and municipalities. The total number of insured persons was thus about 25 millions, being an increase of 1 million compared with the previous year. Compensation for the first time was secured by 107,517 persons, of whom 53 per cent. were industrial, 42·6 per cent. agricultural, and 4·4 per cent. employees in public works. The percentage of compensation payments for each 1000 accidents has much increased compared with 1924. The rate per 1000 was 5·2 (4·4) among industrial workers, 3·2 (2·6) among agricultural workers, and 5·4 (4·2) for State and municipal workers, the figures in parentheses being those for 1924. The increase is partly due to legal extension of insurance to the time of transport to and from work. The accidents were fatal in 7·5 per cent. of cases, and 1·1 per cent. of them caused total incapacity for work.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

Deep X Ray Treatment in Dublin.

AN improved apparatus for treatment by de X rays has been installed at the Royal City of Dub Hospital, and the treatment rooms were public opened by the Governor-General last month.

The treatment room contains a switch-table whi places the whole apparatus under the comple control of one operator. Projecting through t wall between the machine and treatment rooms a two large metal cylinders. Each cylinder, which c be raised or lowered by means of a motor mechanis contains one X ray tube, thus enabling the sim taneous treatment of two patients, who are plac on couches either beneath or over the cylinde according to the type of treatment being giv The cylinders, which weigh one ton each, are coat with lead a quarter of an inch thick, thus affordi complete protection for the operator and enabli the doctor or sister to be in close touch with t patient, heretofore impossible owing to the gra risks run from stray radiation due to imperfec protected apparatus. The facilities for treatm provided will be available for patients at ot hospitals, and also for private patients on the reco mendation of their own medical attendants.

University College Medical Society.

The opening meeting of the University Coll Medical Society was held at Dublin on Nov. 18 Dr. D. J. Coffey, President of the College of Phy cians, in the chair. The President of the Soci for the coming session is Prof. J. M. O'Connor, w delivered an address on the Physiology of Equi bration. He described, with the aid of the lante the investigations carried out by the late Prof. Mag of Utrecht, and laid stress on the fact that in th important experiments no expensive apparatus h been required, but that the coöperation of sev workers, including skilled surgeons, had been essent An interesting discussion followed the address, speakers being Prof. H. Pringle, Prof. E. P. McLaugh Dr. H. Quinlan, and Dr. E. P. Freeman.

The Approved Societies and Medical Benefit.

The annual meeting of the Approved Soci Association of Ireland was held in Dublin last we The annual report was concerned chiefly with recent report of the Committee of Inquiry on Natio Health Insurance and the Medical Service. In opinion of the Association the time has come fo comprehensive reform of the Poor-law med services. If this cannot be achieved they favou scheme of medical benefit for insured persons a their dependents, with an increase if necessary in weekly contribution, not exceeding 3*d.* a week, if this is not feasible, a scheme of medical benefit insured persons only, with an additional weekly c tribution not exceeding 2*d.*, the Association to consulted in the preparation of the scheme. report shows that there has been an abnormal incre in the benefit payments in 1926 and 1927 as compa with 1925; societies were probably not referring t doubtful cases to the National Health Insura Commission for examination by the medical refe which was provided free of cost. The report a dealt with the inadequacy of the Sanatorium Ben Fund, and with the Departmental Committee's rec mendations on workmen's compensation with reg to the National Health Insurance Acts.

Mr. J. D. Nugent, Secretary of the Ancient Or of Hibernians Approved Society, said that the In national Labour Conference in Geneva last June h in its recommendations, to a large extent adopted system of health insurance in operation in Gr Britain. Ireland was hampered because she had such a system. The Geneva report had recommen

mpulsory sickness insurance for all manual and n-manual workers, and that all insured persons ould be entitled to free medical treatment. The heme as it existed in Ireland did nothing to prevent cure disease, but merely provided sickness benefit members. Doctors were paid for issuing certificates itling recipients to draw benefits, and the more y issued the greater their income.

At the annual dinner held in the evening of the ne day Sir Joseph Glynn, chairman of the National alth Insurance Commission, replying to the toast he Health Services, said that the number of insured sons in the Irish Free State was 456,000.

The Milk Commission.

t is stated that the report of the Milk Commission ointed by the Government of the Irish Free State 1926 has been completed and presented to the vernment. It has not yet been published, but understood to contain, among other recommenda-ns: (1) grading of milk, (2) production under ienic conditions, (3) closer supervision of distribu-e agencies, (4) periodic inspection of dairy farms, veterinary inspection of milch cows, (6) more ngent regulations regarding licensing of dairies distributing centres, and (7) heavier penalties for ach of regulations.

UNITED STATES OF AMERICA.

(FROM AN OCCASIONAL CORRESPONDENT.)

Prohibition and the Public Health.

ROM an analysis of death-rates in the pre-prohibition of 1900–17 and the prohibition and post-influenzal od of 1921–26, Dr. Louis I. Dublin, of the Metro-tan Life Insurance Company, has attempted to uate the broad effect of prohibition on the public th. Taking the death-rate for the whole popula-(U.S. death registration area) he finds that a nward trend in the first period has not been ntained in the second. "If we had only these res," he says, "the most favourable interpretation could give would be that the prohibition amend-t had come into effect at a time of low and ining mortality, and that the new legislation had appreciable effect in still further improving the tality of our people."

somewhat more favourable interpretation is made ible by dissecting the death-rates according to sex, and colour distribution. It is then shown as regards sex and colour there has been during prohibition period an improvement limited to e females. Among men over the age of 35 there on the other hand, been a definite rise in ality. Among children and adolescents the pro-ion period coincides with a marked decline ortality. "One might say," ventures Dr. Dublin, at the facts are entirely consistent with an mption that the conditions of life under the ibition régime have been favourable to these ps; on the other hand, there is no evidence ever of a favourable influence on adult men."

xamining the death-rates further by causes of h Dr. Dublin finds that at children's ages the est improvement has occurred in three groups—dents, diarrhœal diseases, and pneumonia. Among young women the decline noted above is largely able to a decline in the tuberculosis death-rate. these ends the campaigns of popular health ation may have contributed, and a rising standard ving must be held equally responsible. It is y generally agreed among social service workers in the prohibition years there has been a marked ovement in the economic condition of the poorer es. "The economic gains," concludes Dr. Dublin, p us to understand the condition among women children. The character of the present supply of r helps us to understand the lack of improvement h appears in the mortality of men." It is not quite clear whether Dr. Dublin accepts the improved economic condition as a result exclusively of the prohibition amendment. From some remarks early in his paper, presented to an open forum at the annual convention of the American Public Health Association, it would appear that he does not.

In connexion with the present prohibition situation in the States attention is being focused on the congressional election this month in the city of Denver (Colorado). The democratic candidate, Judge White, has openly declared for a modification of the Volstead Act; he is also pledged to a policy "restoring to doctors the right to prescribe liquor in such quantities for medicinal purposes as in their training and experience they find necessary." Judge White's candidature is strenuously opposed by the Anti-Saloon League, the W.C.T.U., and the great majority of the ministers of the Denver churches.

Control of Cancer.

For four years now the Wayne County Medical Society have carried on an annual campaign of education for the control of cancer by early diagnosis. Each year some 2300 citizens present themselves for examination during cancer week at the Detroit Hospital; each year from 15 to 20 per cent. of those examined are found to have cancer or some precancerous condition. The following short table of cancer diagnosed in the last two years shows that the amount of latent cancer in the community is apparently fairly constant.

Cases Diagnosed.

	1926.	*1927.*
Skin	47	43
Breast	18	29
Lip	9	11
Uterus and vulva ..	14	6
Other	6	12
Total	94	101
Precancerous conditions..	282	287

It will be observed that the inaccessible growths are not often diagnosed. Dr. Harry C. Saltzstein, the secretary of the Cancer Committee, points out that in 1925 and 1926 there were 761 recorded deaths from carcinoma of the stomach in Detroit; during this period there were 28 gastric resections for cancer done in all the hospitals of the city, with 15 operative recoveries. More facilities for diagnosis and treatment of cancer are needed, the committee concludes, and more "follow-up" work of the cases diagnosed.

New Medical Centre in New York.

A new medical centre will be formed by the amalgamation of New York Hospital and Cornell University in an institution to be called the New York Hospital Cornell Medical College Association. The building will be situated slightly to the north of the Rockefeller Institute for Medical Research, and the cost is likely to be 15,000,000 dollars (£3,000,000); towards this sum the General Education Board has appropriated 7,500,000 dollars. There will be about 415 public and 75 private beds, and a large out-patient department, whose cost is estimated at 11,000,000 dollars. A distinctive feature of the enterprise is the proposal to relieve the heads of the principal clinical departments from the toil of practice outside the institution; they will be salaried officers giving their whole time to patients, teaching and research. Dr. Robinson, who has been made director of the association, is at present director of Vanderbilt University, where he organised the medical department in 1920. He is a graduate of Johns Hopkins University, and was the first resident physician of the hospital of the Rockefeller Institute for Medical Research. It is interesting to recall that New York Hospital is the second oldest in the United States, having received its charter in 1771. Cornell University Medical College was established in 1898, and has been affiliated with the hospital since 1912.

Correspondence.

"Audi alteram partem."

EPSOM COLLEGE SANATORIUM.

To the Editor of THE LANCET.

SIR,—In your issue of Dec. 11th, 1926, you published a letter from the Chairman of Council of Epsom College appealing for financial help from the medical profession to enable the Council to build a new sanatorium and isolation block, which, while providing adequate accommodation for the needs of the College, would at the same time be a model for all other schools to copy. It was also pointed out that the present sanatorium, built many years ago, is uneconomical in working, and its arrangements and accommodation in many ways do not conform to modern hospital requirements, but could by a very moderate outlay be adapted as a school house for from 40 to 45 boys. The existing isolation block is a temporary wooden building, the licence for the use of which expires shortly, making imperative the erection of a permanent building in the near future. Cases of scarlet fever and diphtheria are not dealt with in the isolation block, but are sent direct to the isolation hospital of the local authority.

At Epsom, following the practice of some other public schools, no provision is made in the school houses for the treatment of cases of trivial illness, but all cases, however slight, are treated in the sanatorium. This plan ensures every case being seen by a trained nurse at an early stage, and by the medical officer, who is promptly summoned when necessary; but at the same time it also involves the provision of a larger number of beds than is necessary in those schools which have sick rooms in the school houses.

Experience shows that a well-planned sanatorium, with a properly apportioned number of large and small wards to accommodate 12 per cent. of the boys in the school, meets all reasonable requirements for both infectious and non-infectious cases, provided that if a widespread epidemic of any particular disease occurs, one of the school houses is temporarily converted to hospital purposes.

By adopting the plan which has proved so successful and free from risk in the hands of Dr. Friend, at Christ's Hospital, of housing infectious and non-infectious cases under one roof, but with separate means of access to each class of cases, the architects, Messrs. W. A. Pite, Son and Fairweather, have, at the request of the Council, designed a building which will be in every way a thoroughly up-to-date sanatorium, convenient and economical to work, and which it is estimated can be built for the moderate sum of £26,600.

Taking 400 as the maximum number of boys in the school, provision has been made for 20 beds for the non-infectious cases, and 30 beds for infectious cases, or 50 beds in all, with ample accommodation for the nursing and domestic staff. The details of construction are shown on the plans and dealt with fully in the memorandum accompanying this letter, so need not be further referred to here.

While the school fees paid cover the cost of the ordinary scholars, and the annual subscriptions and donations enable the Council to pay for the foundation scholars, an extraordinary expense, such as the provision of a new sanatorium, cannot be met without the aid of special contributions. It is for this reason that we venture to appeal to your readers to help the Council, and make possible the provision of a sanatorium built and equipped on the most modern lines and worthy of a school, a large proportion of whose scholars are the sons of medical men.

Donations received to date amount to £4207 19*s.* 6*d.*, but until at least £15,000 are in hand it will not be possible to proceed with the actual erection of the buildings.

We are, Sir, yours faithfully,

RAYMOND CRAWFURD,
Chairman of Council of Epsom College.
WILLIAM HALE-WHITE,
Treasurer.
ARNOLD LYNDON,
Chairman, Sanatorium Committee.

ORGANIC HYPNOTICS.

To the Editor of THE LANCET.

SIR,—In your issue of Nov. 19th are two letters from well-known manufacturing firms of chemicals relating to organic hypnotics. This subject has been so fully discussed recently at the Royal Society of Medicine,[1] and in the correspondence columns of the *British Medical Journal*,[2] that I do not propose to embark on a further discussion.

The medical profession owes a great debt of gratitude to the discoverers of new drugs of proved therapeutic value. Perhaps the best example is that of salvarsan, which is one of the most valuable therapeutic discoveries of modern times. The manner in which salvarsan was brought before the medical profession by Prof. Ehrlich was a model of perfection. Not only were the uses of the drug clearly pointed out, but the fullest prominence was given to the contra-indications for its use. The dangers of toxic effects were clearly pointed out, and most valuable advice was given as regards that avoidance. In consequence of this, fatalities from poisoning by salvarsan and all drugs have been comparatively few, when one bears in mind the enormous use to which they have been put and the well-known toxicity of the arsenobenzol derivatives. The medical profession owes a great debt of gratitude to Prof. Ehrlich, not only for his wonderful and beneficent discovery, but also for the exemplary care with which he introduced it.

In my paper before the Royal Society of Medicine I stated that the barbituric acid derivatives were perhaps the most commonly used hypnotics, and they have gained this position because of their rapid and certain action. The drugs of this group have a powerful therapeutic action, and if taken in excessive doses may give rise to toxic effects. It is advisable that the early toxic symptoms should be known so that they may be recognised before serious symptoms of poisoning develop. The dangers of possible addiction from their too long-continued use should be realised, since many medical practitioners have had a like experience to myself in meeting with cases of definite addiction from the prolonged daily use of these drugs. Numerous pamphlets have been circulated to the medical profession advertising the barbituric acid group of drugs. None of them, as far as I am aware, contains any reference to the dangers of addiction, and with the exception of those relating to luminal, I have never seen in any of them any warning as regards the danger of overdosage or of the early toxic symptoms to be looked for.

I have no desire to belittle the deservedly recognised therapeutic value of the barbituric acid derivatives. I am strongly of opinion that the firms responsible for the introduction and sale of these drugs should take the medical profession fully into their confidence and give a frank statement of the dangers of overdosage, the early signs of toxic effects, and the care and caution necessary in the use of the drugs. The esteem in which these firms are held by the medical profession would be thereby enhanced, and a feeling of confidence in the use of their drugs ensured. I am quite sure that by so doing there would be no danger of the sale of their remedies suffering in consequence.

I am asked to give statistics as regards fatalities. These are to be found in the Registrar-General's returns. From 1920 to 1926 inclusive there were fatal cases of dial poisoning, and one of didial poisoning

[1] THE LANCET, 1927, i., 1037.
[2] Brit. Med. Jour., 1927, i., 877, 983, and 1125.

ave been recorded. As examples of non-fatal cases may be permitted to quote three out of many in hich I have been consulted.

CASE 1.—Female (Mrs. X), suffering from facial neuralgia. er doctor prescribed one tablet of dialacetin at 9.30 P.M., d one tablet to be repeated at 2 A.M. if necessary. The tient took two tablets of dialacetin, and after a short ne a further two tablets. In addition to this two tablets dial were given by her son. On the following morning 7.30 o'clock, the patient was found to be comatose, the njunctival reflexes were absent, the plantar reflexes gave extensor response. Energetic treatment was adopted rong coffee by nasal tube, colon washes, &c.). At 30 A.M. the patient could be aroused with difficulty, and e plantar reflexes became faintly flexor. At 1 P.M. consciousness had returned, but there was marked slurring of e speech. Headache persisted for 48 hours, and then covery was complete.

CASE 2.—Female aged 50. Acute sciatica on left side for n days. Treated with dial, one tablet three times daily three days. On examination patient was drowsy, speech listinct, tongue furred and could not be protruded, ability to move left arm, retention of urine for 24 hours. ese symptoms were undoubtedly due to dial poisoning, d cleared up in 48 hours after strong coffee, purgatives, and on washes.

CASE 3.—Male aged 34. Previous history of alcoholism. d been under supervision and had taken no alcohol for en weeks. During this period, while under strict medical ervision, had taken three or four tablets of allonal every ht for insomnia. On examination speech thick and listinct, gait ataxic. Diplopia present in the mornings the last few days. This patient was also seen by Sir mes Purves-Stewart, who concurred in the diagnosis of onal poisoning. The symptoms disappeared after the continuance of the drug.

In conclusion, I would like to emphasise the portance of care and caution in the use of the rbituric acid derivatives. They are very valuable erapeutic remedies and, in my opinion, should be ly used under medical supervision, and only taken medical prescription. The medical profession looks guidance and help from the introducers of these w remedies, so that they may be always safely d beneficially used.

I am, Sir, yours faithfully,

Welbeck-street, W., Nov. 26th. W. H. WILLCOX.

PICTORIAL HEALTH PROPAGANDA.

To the Editor of THE LANCET.

SIR,—In an annotation in your last issue entitled alth Education of the Public, attention is called a valuable number of *The World's Health* containing torial propaganda. Some public health workers l be disappointed to read one or two sentences in s annotation—e.g., "Twenty minutes a week voted to the simple things of health in every school uld within ten years do away with the need for st of the posters and pamphlets which Dr. Sands ls with so well." This statement, I suggest, seems strong; while possibly it contains as much truth en looked at from all points of view as any arguents which can be adduced against its verity, on other hand, some people hold the view, perhaps a de one, that many children, rightly or wrongly, ard what they learn in school as something to be gotten as soon as they are released from its bonds, l others think that not a few children regard their sons as dealing with matters entirely divorced m real life. It is not necessary perhaps to pursue s line of thought further; I would pass on to ggest that it is all to the good that essential health quirements should be presented in pictorial form order that such teaching may be absorbed and de part of the belief and life not only of children t, above all, of young and even older adults.

Many interested in pictorial health propaganda ist think that the lesson intended to be inculcated some of the material produced, especially in this ntry and the United States of America, is of so gue and general a character as to be almost useless. e pictorial propaganda produced in Germany has answer the criticisms that it is more suitable for class in physiology than for the general public; a few examples of French pictorial propaganda are, perhaps, more works of art than lessons in hygiene, but all these countries have produced very telling pictures inculcating precepts of the greatest value for the maintenance of health and the prevention of disease. Some of these pictorial lessons are more appropriate to adults than children, anyhow it is only adults who can apply them practically.

The National Association for the Prevention of Tuberculosis has just got out a useful poster showing a woman sewing in her very neat and perhaps too comfortable home—certainly it does not look poverty-stricken—she is a consumptive striving to keep her home and family together instead of going to a sanatorium. The picture presumably tells prospective care committee workers and the public generally that someone should see that such women are placed in such a position as to be able to accept the offer of sanatorium treatment.

I am, Sir, yours faithfully,

C. W. HUTT,
Nov. 28th, 1927. M.O.H. for Holborn.

THE LATE DR. H. P. CHOLMELEY.

To the Editor of THE LANCET.

SIR,—I had just read the obituary of your colleague, Dr. H. P. Cholmeley, in THE LANCET when I had occasion to consult "Prudentius." As I took the volume from my shelves I noticed from an elegant Latin inscription on the fly-leaf that it was the gift of my old Eton and Oxford friend.

We travelled together in Persia and Kurdistan and I well remember his dentistry with a pair of universal forceps on a Kurdish chief and his operation on another Kurd, when Cholmeley and a native doctor, who had studied under the American missionaries, removed a piece of diseased bone from the arm of the grateful Kurd, who presented his surgeons with a pair of socks between them! I believe Cholmeley kept his "first fee" to the day of his death.

Cholmeley, as is said in the obituary notice, was quite unsuited to general practice; he certainly had not the "bedside manner." To a patient who said "What is the matter with me, doctor?" Cholmeley replied: "I don't know, but perhaps I may know to-morrow." I hope your professional readers will forgive a layman for saying that I do not trust many of them at death-beds. But I could trust Cholmeley absolutely, and it was a compact between us that when I was seriously ill I should send for him, because he would tell me when I was going to die—a thing which surely every man has the right to know that he may have time to put a few necessaries together for the journey. Now, alas, my friend has set out before.

Of his literary attainments, his courtesy to all, his tenderness to animals, his sense of humour I could add much to what you have already said. But I will sum him up by saying that to me and to all who knew him well he was like the famous Sir Thomas Browne, of Norwich, an honourable physician and a cultured Christian gentleman.

I am, Sir, yours faithfully,

ATHELSTAN RILEY.
Manoir de la Trinité, Jersey, Nov. 17th, 1927.

THE ABUSE OF FORCEPS.

To the Editor of THE LANCET.

SIR,—The other day I attended my first confinement case with a new district nurse. As I was about to put on forceps after a very prolonged second stage she remarked: "I suppose the os is nearly fully dilated now, is it, sir?" I half jokingly replied: "You're not accusing me of putting on forceps before the os is fully dilated, are you, nurse?" "Oh, well," she said, "where I've come from one doctor always used to put on forceps when the os was five shillings. He saved me a lot of time." Comment is superfluous.

I am, Sir, yours faithfully,

Nov. 21st, 1927. ASTOUNDED.

THE "TONSIL" QUESTION.

To the Editor of THE LANCET.

SIR,—Mr. Stoker's article in your issue of Nov. 26th is a fair statement of a controversial matter. May I make a few remarks on one subject which interests me. I have had opportunity to treat many cases of chronic otorrhœa at aural clinics of the school medical service. Before coming to a clinic the larger number of these patients have had their tonsils removed and yet otorrhœa exists. A smaller number have had no operation on the throat. This number may be subdivided into those without inflamed tonsils and a few who show signs of definite inflammation. Treatment of the ears of these last is not likely to be successful without operation. Of the large number outside this group, some of whom have had operation and some not, treatment of the ears shows the same result; recurrence of the otorrhœa, in those in whom it has been cured, does not seem to be more frequent in those who have not been submitted to operation than in those who have.

I think that a more or less general practice of removing adenoids and tonsils for chronic otorrhœa arose from the striking results which occasionally followed the operation. If it is permissible to form an opinion it seems to me: (1) from observing those cases of otorrhœa in which an operation has been performed, that in many patients the operation has little effect on otorrhœa; (2) from observing those cases in which the tonsils are not inflamed and in which treatment is confined to the ear, that it is quite unnecessary to remove tonsils and adenoids as a routine measure in chronic otorrhœa.

I do not wish to make an objection to the treatment of tonsils and adenoids based on other indications of their effects, but I think that in a large number of cases of chronic otorrhœa the presence of discharge from the ear is not a reason for removing tonsils and adenoids.

I am, Sir, yours faithfully,

London, W., Nov. 28th, 1927. A. R. FRIEL.

CARLSBAD WATERS.

To the Editor of THE LANCET.

SIR,—It may be of interest to your readers to know that the medicinal waters of Carlsbad—from which resort I have just returned after sampling it in November with enjoyable and satisfactory results—are now admitted into England free of duty. Hitherto the customs authorities were under the impression that the Sprudel, Schlossbrunnen, Mühlbrunnen, and other waters could be used as table beverages. No one could try the experiment with impunity. It is always well to have medical advice before drinking Carlsbad waters, especially away from their source.

I am, Sir, yours faithfully,

ROBERT DONALD.

Rutland-gate, S.W., Nov. 28th, 1927.

THE NUTRITIVE VALUE OF BREAD.

To the Editor of THE LANCET.

SIR,—In regard to the interesting and valuable paper of Dr. Cramer and Dr. Mottram on the nutritive value of bread, may I recall the observations made 16 years ago by Martin Flack and myself?[1] We showed then the great superiority of Hovis over white standard and wholemeal bread, owing to the germ included in Hovis. Our rats were bedded on chaff, and fed on bread and water only. On Hovis the rats not only flourished but bred to the third generation. Germ is not only rich in vitamin B, but in vitamin E which is required for breeding.

I am, Sir, yours faithfully,

LEONARD HILL.

National Institute for Medical Research, Hampstead, N.W., Nov. 24th, 1927.

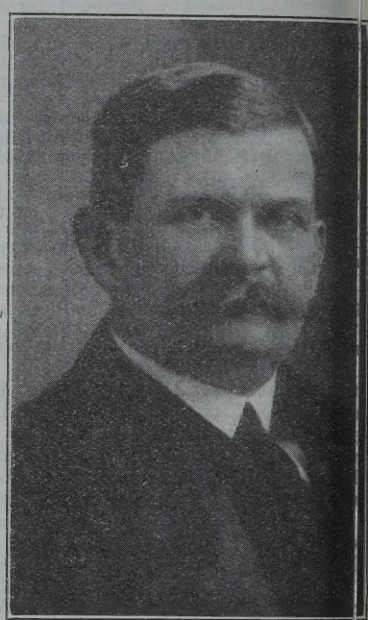
[1] Brit. Med. Jour., 1911, i., 1068 and 1310; ii., 597, 949, 1330.

Obituary.

RICHARD HENRY ANGLIN WHITELOCKE M.D. OXF. AND EDIN., M.CH. EDIN., F.R.C.S. ENG

WE announced last week the death of Mr. Ang Whitelocke, the well-known surgeon to the Radcl Infirmary and Litchfield Lecturer on Surgery in University of Oxford.

Richard Henry Anglin Whitelocke was the fou son of Mr. Hugh Whitelocke, of Bulstrode Pa Westmorland, formerly a member of the Execut Council of Jamaica. He was born in 1861, and received his preliminary education at Owens College, Manchester, and from there proceeded as a medical student to the University of Edinburgh. He graduated M.B., B.Ch. in 1884 with honours, and having taken in the same year the diploma of M.R.C.S., he proceeded to hold various resident appointments in Glasgow, Edinburgh, and London. In Glasgow he acted as house surgeon to Sir William Macewen, one of the foremost exponents of Liste surgery at that epoch. In Edinburgh he held an opht mological post, and in London was a clinical assis at Moorfields. For a time he was engaged in hol private classes in anatomy, and this gave a bia the whole of his future career. In 1888 he settle Oxford with a view to practise as an ophthalmolo but on realising there was no opening he ent general practice, but always with the intentio becoming a pure surgeon. He acted as Prof. Art Thomson's first demonstrator in anatomy, worked steadily for the Fellowship of the R College of Surgeons of England, a diploma w he obtained in 1893. His opportunity came six y later when he proved a successful candidate for a on the surgical staff of the Radcliffe Infirmary. speedily became known in Oxford and also over a l county area as a surgeon of great skill and resour



R. H. ANGLIN WHITELOCKE.

His reputation was perhaps specially made connexion with joint injuries and sprains, for Ox provided, through its various athletic activitie fine field for his talents. Alike on the running co or the football field he was in request for all casua among the undergraduates. He acted for m years as consulting surgeon to the University Ru Football Club, and many of his patients now scatt over the face of the earth will read of his death real regret. When, in 1909, he wrote his well-kn book, "Sprains and Allied Injuries of Joints," supplied information of the first assistance to all have to deal with these too often obscure inju The Rontgen rays had at this time been in use over ten years, but no one had pointed out so cle as Whitelocke of what assistance they could b the diagnosis of injuries of the joints. It may

hat before Rontgen's discovery clinical surgery had endered easy the recognition of ordinary dislocaions, but on numerous and slight cases of injury, ommonly called sprains, a flood of light was thrown y the proper employment of the X rays. The value f Whitelocke's treatise lay in the attention which e devoted to the minor injuries of joints, and the eaching was made all the clearer by instruction in he use of massage and of passive exercises, and by n account of bandages and liniments suitable to articular conditions. He followed this work up ith various essays upon football injuries, athletics relation to disease, and the technique of bone perations, and became a recognised authority both Oxford and in London, where he had for a time onsulting rooms. He was appointed Litchfield ecturer on Surgery at the University of Oxford, nd consulting surgeon to the Great Western and ondon and North-Western Railways. In the proedings of the Royal Society of Medicine, where at ne time he served as president of the Section of ediatrics, many useful contributions from his pen ill be found, while in 1914 he contributed to the *ritish Journal of Surgery* two valuable papers spectively on loose bodies in the knee-joint and on slocations of the patella.

During the war Whitelocke had charge, with the nk of Lieut.-Colonel, of the Third Southern General ospital, and made full use of the opportunities then fered for operative surgery, while at the close of ostilities his services were still in demand as a ecialist to the Ministry of Pensions. But that hitelocke was more than a specialist was proved a valuable paper which he read before the Royal ciety of Medicine in 1920 on appendicectomy by a w route. The operation was planned for the removal the vermiform appendix through the right iliac ssa in cases where general exploration of the abdoinal cavity was not called for, that is to say, in ute rather than in chronic cases, and the deviser the operation set out its advantages from the natomical and surgical aspects with remarkable arness. There was much in the paper that invited scussion, but Whitelocke was speaking from the usually strong position of having practised what preached for over 12 years, while he quoted the sults of 843 consecutive operations performed at stages of the disease, whether simple or comicated, and at ages ranging from 3 to 79 years. he mortality-rate was 2·25 per cent. and no hernia weak scars had occurred.

In Oxford Mr. Whitelocke will be deeply missed. om the outset of his career in the city he was a eat supporter of the local medical societies, and is seldom absent from gatherings either of the xford Medical Society or the British Medical sociation, and was always ready to open or take rt in a discussion. He was an honorary Master of ts of Lincoln College, and was also one of the original members of the Oxford Medical Club, club started in Oxford in 1891 with a membership limited to 12, and with the object of reading pers and discussing subjects unconnected with edicine. Only two of the original members remain, of. Arthur Thomson and Dr. William Collier, and om these gatherings Whitelocke was seldom absent. e was a considerable traveller, and it was, in particular, a source of regret to him that ill-health this ar prevented him in joining his surgical colleagues a visit to Madrid.

Mr. Whitelocke had not been in really good health ce the war, though the announcement of his death me as a surprise to many of his friends. He married rbara, eldest daughter of the late Mr. G. L. Reid, I.C.E., of Brighton, and leaves three daughters d three sons, the younger of whom is in medical actice in Oxford.

EDWIN JOHN GURDON, M.R.C.S. ENG.

Dr. E. J. Gurdon, who died on Nov. 19th, came of old Suffolk family and was born at Saxmundham ne 70 years ago. He received his medical education at St. Thomas's Hospital and at Brussels, and in the early eighties went to Australia for the sake of his health, which was always indifferent. He soon had a large consultant practice in Melbourne, but a taste for adventure took him further afield to the Australian goldfields, at first to Condobolin in New South Wales and later to Western Australia. Here his administrative abilities were used on behalf of the Western Australian Medical Service, and his last appointments were as resident magistrate of the well-known pearling towns of Onslow, Shark Bay, and Derby (Kimberley). At the outbreak of war, although there was no special call on him, he came back to England and worked for two years at Winterton in Lincolnshire, thus releasing a younger man for active service. After the Armistice he took a small country practice at Beaumaris in Anglesey, where he was able to live the country life he loved. He was a good shot and a keen sportsman, and kept at work until the day before his death.

Dr. Gurdon's only son died in the war. He leaves a widow and a daughter.

Parliamentary Intelligence.

HOUSE OF LORDS.

TUESDAY, NOV. 29TH.

Royal Edinburgh Hospital Bill.

The DUKE OF SUTHERLAND, Paymaster-General, moved the first reading of the Royal Edinburgh Hospital for Mental and Nervous Diseases Order Confirmation Bill.

The motion was agreed to.

HOUSE OF COMMONS.

WEDNESDAY, NOV. 23RD.

Production of Vaccine Lymph.

Mr. GROVES asked the Minister of Health what processes were adopted after the collection of the lymph material from calves for vaccine, and what substances were added to it; and why such substances were added.—Sir KINGSLEY WOOD, Parliamentary Secretary to the Ministry of Health, replied: The lymph material collected from calves for vaccine is weighed and reduced to an emulsion with a known weight of a diluent consisting of glycerine, distilled water, and oil of cloves. The diluent is used to bring the lymph material to a suitable consistency, and to get rid of extraneous bacteria.

THURSDAY, NOV. 24TH.

Fraudulent Descriptions of Foodstuffs.

Viscount SANDON asked the Minister of Health whether his attention had been called to the use of fraudulent descriptions in toffee, ice-cream, and other foodstuffs; and whether he would take powers to secure the provision of definitions of food titles in order to eliminate misconception where it existed.—Sir KINGSLEY WOOD replied: If a purchaser demands an article of food under one of the descriptions referred to, it is a question for determination by the court under the Sale of Food and Drugs Acts whether the article sold complies with the description. There is no prescribed standard of composition, and my right hon. friend does not think that the circumstances are such as to justify further legislation.

Cost of Food and Drugs Inspection.

Mr. CECIL WILSON asked the Minister of Health the approximate cost, during each of the last five years, incurred by local authorities in the inspection of foods and drugs, the number of prosecutions for offences, the number of convictions, and the amount of fines imposed; and in how many cases imprisonment had followed conviction.—Sir KINGSLEY WOOD replied: I am circulating a statement of the expenditure and receipts of local authorities in connexion with the work in question during the last five years for which the figures are available. The receipts shown in the statement are principally derived from fines and costs recovered in successful prosecutions. My right hon. friend regrets that the other particulars asked for in the question are not available.

The statement is as follows: Expenditure and receipts of local authorities in England and Wales in connexion

with the prevention of adulteration, &c., of foods and drugs :—

Year.	Expenditure.	Receipts other than from rates.
	£	£
1920–21	108,493	5866
1921–22	113,075	5719
1922–23	107,269	5092
1923–24	109,019	5397
1924–25	114,080	5188

Mr. WILSON : If they are not available now can they be made available for the future ?—Sir KINGSLEY WOOD : I cannot give the hon. Member particulars of the prosecutions and convictions ; I am afraid it is impossible to get them.

Production of Vaccine Lymph.

Mr. GROVES asked the Minister of Health (1) how the carcasses of calves used in connexion with the procurement of vaccine lymph were actually disposed of and (2) what steps were taken in respect to vaccine lymph to ensure that only healthy calves were used.—Sir KINGSLEY WOOD replied : The calves used at the Government lymph establishment are carefully inspected on arrival and are constantly under observation, their temperatures being frequently taken. After the production of lymph the calves are slaughtered and examined by a veterinary expert, and only the lymph from calves certified as healthy is used for vaccination. The carcasses are at the disposal of the person who supplied the calves, and those sold for food are subject to further examination by officers of the local sanitary authorities.

Cost of Health Insurance Administration.

Mr. THOMAS WILLIAMS asked the Minister of Health what was the cost of administering the National Health Insurance funds for the insurance year ended July, 1927, and the percentage this constituted of the total expenditure. —Sir KINGSLEY WOOD replied : The audited accounts of approved societies and insurance committees are made up only in respect of calendar years, and the cost of administration for the insurance (contribution) year ended July, 1927, cannot be stated. For the calendar year 1926 the total cost (including cost of the central administration) was £5,060,000, constituting 13½ per cent. of the total expenditure.

The Smoke Abatement Act.

Mr. ROBERT WILSON asked the Minister of Health whether he could make any statement as to the working of the Smoke Abatement Act.—Sir KINGSLEY WOOD replied : The Act came into force only on July 1st last. I may say, however, that by-laws as to the emission of black smoke have been approved for a number of authorities. Some regional advisory committees have been set up. A Draft Order extending the Alkali Acts has been prepared and considered with representative bodies and the statutory inquiry will be held next month.

The Small-pox Danger.

Sir ARTHUR HOLBROOK asked the Minister of Health whether his attention had been directed to the increase in cases of small-pox during the past few months ; and whether he would consider the introduction of legislation in order to protect the community from this danger.—Sir KINGSLEY WOOD replied : As regards the first part of the question my right hon. friend is aware that small-pox is still prevalent in some parts of the country, but the number of cases notified during recent months is considerably smaller than the numbers notified in the early months of this year. As regards the second part, my right hon. friend is awaiting the report of the Committee on Vaccination, which was appointed last year, before considering the question of further action on this subject.

Slum Clearance Schemes.

Mr. GILLETT asked the Minister of Health the number of persons it was proposed to displace in connexion with the slum clearance scheme in the borough of Finsbury ; and whether provision would be made for rehousing those so displaced within the borough.—Sir KINGSLEY WOOD replied : 205 persons will be displaced in connexion with the Metropolitan Borough of Finsbury (White Horse Alley) Reconstruction Scheme, 1926, and rehousing accommodation for this number is being provided by the borough council in flats which are in course of erection at Mantell-street within the borough.

Mr. ERNEST BROWN asked the Minister of Health what total subsidy had been actually paid by the Government since Jan. 1st, 1919, towards the cost of slum clearances, and in any other way to help directly with the slum problem.—Sir KINGSLEY WOOD replied : The total sum paid on account by Exchequer subsidy towards the cost of slum clearances since April 1st, 1924, is £103,000.

FRIDAY, NOV. 25TH.

Government and Mental Deficiency Bill.

Sir HERBERT CAYZER asked the Prime Minister whether the Government intended to give facilities for the passing into law this session of the Mental Deficiency Bill.—Mr. BALDWIN replied : The Government may be able to find time for this Bill, but the final decision must, of course, depend on the state of business.

MONDAY, NOV. 28TH.

Nursing Homes (Registration) Bill.

Dr. VERNON DAVIES asked the Prime Minister if he would grant facilities before the end of this session for the Nursing Homes (Registration) Bill.—Mr. BALDWIN replied : I can make no promise in regard to time being given to Private Members' Bills, as the final decision must of course depend on the state of business.

Dr. VERNON DAVIES : Is the Prime Minister aware that the differences between the opponents of the Bill are fundamental that unless he uses his power to pass the Bill the grave irregularities and scandals which were disclosed before the Select Committee appointed by this House will go on unchecked to the detriment of the health of the patients in some nursing homes.

No answer was given.

Cost of Small-pox in Durham.

Captain MACMILLAN asked the Minister of Health if he was aware that the recent outbreak of small-pox in the Easington union of the county of Durham had cost the ratepayers a sum of £16,000, equivalent to a rate of 8*d.* in the £, and that in every case it was proved that the persons attacked by the disease had either not been vaccinated at all or had not been vaccinated within the previous 15 years ; Mr. CHAMBERLAIN replied : I have no official information as to the cost of this outbreak. The returns made to my department show that no person under the age of 15 years contracted small-pox who had been vaccinated prior to infection.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED NOV. 19TH, 1927.

Notifications.—The following cases of infectious disease were notified during the week :—Small-pox, 226 (last week 258) ; scarlet fever, 2320 ; diphtheria, 1509 ; enteric fever, 154 ; pneumonia, 972 ; puerperal fever, 49 ; puerperal pyrexia, 111 ; cerebro-spinal fever, 10 ; acute poliomyelitis, 19 ; acute polio-encephalitis, 4 ; encephalitis lethargica, 31 ; continued fever, 1 ; dysentery, 5 ; ophthalmia neonatorum, 80. There was no case of cholera, plague, or typhus fever notified during the week.

Of the 154 cases of enteric fever 76 were notified from the county of Hertford, where there was a milk-borne outbreak of paratyphoid, 71 being from Hemel Hempstead (U. and R.D.), 4 from Watford (R.D.), and 1 from St. Albans.

Deaths.—In the aggregate of great towns, including London, there was no death from small-pox, 7 (2) from enteric fever, 50 (11) from measles, 5 (0) from scarlet fever, 4 (0) from whooping-cough, 35 (13) from diphtheria, 65 (13) from diarrhœa and enteritis under two years, and 67 (15) from influenza. The figures in parentheses are those for London itself. The deaths from enteric fever outside London occurred in Birmingham 2, Leicester 1, Stockport 1, and Cardiff 1. The number of stillbirths registered during the week was 273 in the great towns, including 54 in London.

THE LATE MR. A. BOLLES LEE.—We are asked to say that copies of the portrait of Mr. A. Bolles Lee, which was published in the *Journal of Pathology and Bacteriology* for last July, may be had from the Editor at 17, Loom-lane, Radlett, Herts.

HOSPITAL BEDS IN THE SHEFFIELD DISTRICT.—On the suggestion of the Ministry of Health a regional conference of all the hospital authorities in the Sheffield district has just been held to consider the availability of beds between Poor-law and voluntary hospitals. It was stated that in the Sheffield area there are 2111 and in the outside districts 1077 patients unable to get beds. The Poor-law institutions have 50 vacant beds, and there are others vacant in the Doncaster Poor-law hospital and in the Worksop area.

Medical News.

UNIVERSITY OF OXFORD.—At a congregation held n Nov. 26th the degree of Doctor of Medicine was conferred n B. G. Scholefield.

An Examination at the University of Oxford for a *adcliffe Travelling Fellowship* (annual value £300, tenable or two years) will begin on Feb. 14th. Candidates must have assed all the examinations required for the degrees of .A. and B.M., and not more than four years must have lapsed since they passed the last examination. Intending andidates should communicate with the Regius Professor f Medicine, at the University Museum, before Feb. 1st.

The *George Herbert Hunt Travelling Scholarship* is awarded ithout examination every second year to a graduate in edicine of the University (of either sex) who has not xceeded five years from the date of passing the final xamination for the B.M. degree. The successful candidate required to travel abroad for not less than three months or the purpose of clinical study or research in medicine. reference is given to candidates who intend to practise s surgeons or general practitioners. The next election will e made next April, and applications should be sent to the ean of the School of Medicine, at the University Museum, efore Feb. 14th.

UNIVERSITY OF LONDON.—At recent examinations he following candidates were successful:—

DIPLOMA IN PSYCHOLOGICAL MEDICINE.

With Special Knowledge of Psychiatry.—Frederick Back, J. N. Jacobson, J. M. Mackenzie, J. J. O'Reilly, and Morris Robinson, M.B., B.S.

With Special Knowledge of Mental Deficiency.—E. C. T. Emerson.

SOCIETY OF APOTHECARIES OF LONDON.—At recent xaminations the following candidates were successful:—

Surgery.—E. E. Bowen, Middlesex Hosp.; W. B. Hallums and H. T. Ince, St. Mary's Hosp.; M. H. Rashwan, Guy's Hosp.; H. T. Rylance, Middlesex Hosp.; M. E. Tscheuschner, Berlin and Charing Cross Hosp.; T. de L. Walker, King's College Hosp.; and R. W. Wood, St. Bart.'s Hosp.

Medicine.—A. F. J. D'Arcy and P. F. Fanaken, St. Mary's Hosp.; T. M. Joseph, London Hosp.; I. O. B. Shirley, St. Thomas's Hosp.; and M. E. Tscheuschner, Berlin and Charing Cross Hosp.

Forensic Medicine.—A. F. J. D'Arcy and P. F. Fanaken, St. Mary's Hosp.; L. W. Sanders, Manchester; M. E. Tscheuschner, Berlin and Charing Cross Hosp.; and J. L. M. Wood, Sheffield.

Midwifery.—J. S. Bury, Manchester; G. N. Fox, St. Bart.'s Hosp.; A. Hamid, Middlesex Hosp.; T. M. Joseph, London Hosp.; A. K. Rama Chandra, Edinburgh; and M. E. Tscheuschner, Berlin and Charing Cross Hosp.

The Diploma of the Society was granted to the following ndidates, entitling them to practise medicine, surgery, and idwifery: A. F. J. D'Arcy, P. F. Fanaken, T. M. Joseph, . E. Tscheuschner, and T. de L. Walker.

DONATIONS AND BEQUESTS.—The Royal Manchester ildren's Hospital during the past month has received gacies and donations amounting to £3498, including 000 from Mrs. G. M. Goodbehere, £900 from the late artha Jane Guest, and £500 each from the Ancient Order Frothblowers and Messrs. Peel and Co., Ltd.—Lord ble of Ideford, Calcutta, Bishops Teignmouth, Devon, and osvenor-square, W., merchant, left, besides many other quests, over £60,000 to charities, including £22,450 to the lcutta General Hospital.—Mr. Joseph Cuthbert, Sheffield d Bridlington, on the death of his wife, gives £500 each to effield Royal Infirmary, the Sheffield Royal Hospital, the effield Children's Hospital, the Jessop Hospital for omen, St. Anne's Convalescent Home, Bridlington, Lloyd's ospital, Bridlington, and the Sheffield Blind Institution.—ackburn Royal Infirmary has received £2000 under the ll of Mrs. Stewart, late of Lynwood-road, Blackburn, to dow two cots.—Mr. C. F. Edwards, of Highfield, Lathom, t £10,000 to charities including £1000 to the Ormskirk ttage Hospital and Dispensary.—Miss Violet Wells, of aytor, Devon, has given a second donation of £1000 to e new Crippled Children's Hospital, Exeter, just opened the Duchess of York.—Mrs. Robert Clayton, of the rrets, Rishton, has given £1000 to the Blackburn and st Lancashire Royal Infirmary to endow a bed in memory her late husband.—Mr. William George Evans, of Craven ms, Salop, retired medical practitioner, left estate of the lue of £17,672. After numerous bequests he gave the sidue of the property in equal shares to King's College ospital (his old hospital) and the Royal National Lifeboat stitution.—Mr. Ben Woodhead, Woodville, near Burton-Trent, left £1000 to the Burton-on-Trent General firmary.—Mr. A. W. Bowburn, of Northbury Booths Hall, near Knutsford, has sent a cheque of £2000 to the Knutsford Hospital for a new children's ward.—Mr. Douglas Cow, of Streatham, has sent a cheque for £1000 to the Queen Charlotte's National Mother-Saving Campaign, and has applied for 1000 of its Cradle Bonds.—The Victoria Infirmary, Northwich, has received during the present year £1000 from the Northwich and District Hospital Saturday Committee.

UNIVERSITY OF STRASBOURG.—Honorary degrees were recently conferred in person on Dr. G. H. F. Nuttall, F.R.S., Quick Professor of Biology at Cambridge, and Sir Charles Sherrington, O.M., F.R.S., Wayneflete Professor of Physiology at Oxford.

ROYAL SOCIETY OF MEDICINE.—Dr. Alice Bloomfield has been granted an extension of the William Gibson Research Scholarship for a third year. The next award of the scholarship will therefore be made in June, 1929.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE.—The Langley Memorial Prize, which was founded by a friend of the late Dr. W. H. Langley, principal medical officer of Southern Nigeria, has been awarded to Dr. A. S. Burgess, of Accra, Gold Coast, West Africa, for his paper the Selection of a Strain of *Bacillus pestis* for the Preparation of Vaccine, with Special Reference to the Effect of Animal Passage on Virulence.

HARVEIAN SOCIETY OF LONDON.—The awards in connexion with the Buckston Browne prize for the best essay on the Pathology, Diagnosis, and Treatment of New Growths Originating in the Walls of the Urinary Bladder are as follows: Mr. L. R. Fifield, F.R.C.S., £100 and medal, proxime accessit, Mr. M. F. Nicholls, F.R.C.S., £10. An epitome of the prize essay will be read by Mr. Fifield at the next meeting of the Society, to be held at the Town Hall, Paddington, on Thursday, Dec. 8th, at 8.30 P.M. The presentation of the medal and cheques will take place at the annual general meeting, which will be held at 8.30 P.M. on Jan. 12th, at 11, Chandos-street, W. 1.

ROYAL AIR FORCE MEDICAL SERVICE.—The annual dinner of the Royal Air Force Medical Service was held at the Connaught Rooms, London, on Friday, Nov. 25th, the Director, Air Vice-Marshal David Munro, C.B., C.I.E., being in the chair. The interesting point of the dinner was that the Chairman, in proposing the health of the guests, for whom Lieut.-General Sir Matthew Fell, the Director-General, A.M.S., responded, dealt in a frank way with the difficulties which at present exist in the recruiting of medical officers. He admitted the need for more officers, but gave reasons for believing that there were factors likely to make the shortage less acutely felt, and others which would attract a sufficient number of entrants. He emphasised especially the alteration in the proportion of officers serving overseas to those at home, due to reductions in Iraq and expansion at home; and the increase in the proportion of permanent officers due to the decision by the Warren Fisher Committee to allow a 50 per cent. chance of getting a permanent commission to all short service officers. The shortage of officers and frequent changes of personnel caused, he pointed out, embarrassments in making a selection for training young permanent officers, for the replacement later on of those engaged in various branches of professional work. The Service required good surgeons, pathologists, and physicians in its hospitals, and also experts in dealing with the medical and physiological problems peculiar to aviation, as well as ophthalmologists and otologists. At the present moment the supply was adequate, but the shortage stopped opportunities for study leave, and without study leave the necessary courses of special training could not be obtained. In connexion with officers serving at small aerodrome stations, he pointed out that these were the men who could not get leave owing to shortage, and that their work, often single-handed and without a well-equipped hospital in the background, was monotonous, even while it had to be of good quality. To meet the drawback it was intended, he said, to give better opportunities for practice to these officers by removing the bar on their retaining none but the lightest cases in sick quarters, and by encouraging a freer use of their cottage hospitals, whose equipment would be revised, while arrangements would be made for extra assistance when required. A measure of executive responsibility over the medical personnel on the station would also be granted—a most valuable way, said the speaker, of teaching officers to take general responsibility. He announced the imminent creation of new posts for wing commanders. Air Vice-Marshal Munro closed by referring to the opening of the Halton Hospital (see THE LANCET, Nov. 5th, p. 995, &c.), where the medical training for medical officers and medical airmen would inculcate Service methods in a Service atmosphere at the initial stages.

Mr. Percy James Kelly, M.B., Ch.B. Glasg. (Surgeon-General), has been appointed a member of the Executive Council of the Colony of British Guiana for a further period.

LONDON HOSPITAL.—The Bernhard Baron Institute of Pathology will be opened by Sir Humphry Rolleston on Tuesday, Dec. 6th, at 3 P.M.

A WOMEN'S POOR-LAW HOSPITAL.—A new women's hospital, erected by the Wirral, Cheshire, board of guardians, at a cost of £30,000, has been opened at Clatterbridge. The building has accommodation for 112 patients and comprises surgical and medical sections, each with a 28-bed ward, a 12-bed ward, and a large number of smaller wards.

EXPERIMENTAL FARM FOR CANCER RESEARCH.—Mr. Harold Sutcliffe and his brother, Mr. Norman Sutcliffe, have purchased the Lumley Hall estate of 21 acres and a manor house at South Milford, near Selby, and have presented it to the Yorkshire Council of the British Cancer Research Campaign, to be used as an experimental farm, for the purpose of carrying out experiments upon large animals. Dr. R. D. Passey, Director of Cancer Research in the University of Leeds, will live on the farm.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—On Monday, Dec. 5th, at 5 P.M., at the rooms of the Medical Society of London, 11, Chandos-street, Cavendish-square, W., Dr. R. Travers Smith will speak on Practical Hints in Medicine. This lecture is free to members of the medical profession. A daily course of lecture-demonstrations in the in- or out-patient department of the West End Hospital for Nervous Diseases is now in progress. From Dec. 5th to 17th, at 2 P.M., at the Infants Hospital, there will be a course primarily for medical officers of welfare centres; visits will be paid to various centres. Between the same dates, at the Blackfriars Skin Hospital, a course will be given, including two special demonstrations of cases. In January courses will be held in medicine, surgery, and the specialties at the Prince of Wales's General Hospital; in diseases of children at the Children's Clinic; in cardiology at the National Hospital for Diseases of the Heart (entries limited to 20); and in psychological medicine at the Bethlem Royal Hospital. Information, syllabuses of special and general courses, and tickets may be had from the Secretary of the Fellowship, 1, Wimpole-street, London, W. 1.

ROYAL MEDICAL BENEVOLENT FUND.—At the last meeting of the Committee 49 cases were considered and £676 voted to 40 applicants. The following are notes on some of the cases relieved.

Widow, aged 54, of M.R.C.S. who died suddenly this year. Left with two sons and one daughter, all of whom are training. Applicant hopes to have about £65 per annum when her husband's estate is settled. Her private income is £20 per annum, and she has a resident post at £28 per annum. Asks for help to meet second son's fees up to Christmas. Voted £35.

Widow, aged 43, of M.B. Lond. who was recently removed to a mental hospital as a free patient. Has two girls and a boy. Eldest girl at a boarding school paid for by her godmother. Boy at a boarding school and the youngest is with applicant. They are now living on the amount received from the sale of the practice and the money is nearly exhausted. The Fund is asked to help with the boy's school fees as applicant hopes to manage to meet her other expenses by sweet-making and needlework. Voted £21 10*s*.

Widow, aged 74, of M.D. Lond. who died in 1915. She has maintained herself by teaching, but owing to age and ill-health finds it difficult to continue. Her expenses are about £2 a week and her income is derived from the Freemasons (£56 per annum) and a merchants' Guild (£40). Fund voted £30 in two six-monthly instalments.

Daughter, aged 50, of M.D. St.And. who died in 1880. Was brought up by a sister and since leaving school has maintained herself. Now only able to get temporary posts. Voted £5 and asked to let the Fund know how she is getting on.

Daughter, aged 55, of L.R.C.P. Edin. who died in 1878. On her brother's marriage in 1907 was left without means and had to support herself. A relative allows her 10*s*. a week and for some time she has been living on her savings which are rapidly becoming exhausted. Some friends have given her hospitality temporarily. Voted £26 in four quarterly instalments.

Widow, aged 58, of L.R.C.P.I. who practised in Lancashire and died in 1911. She has maintained herself and daughter since the death of her husband, but owing to indifferent health is not able to do heavy work and is now only earning 10*s*. a week while the Irish Medical Benevolent has sent her £15. Voted £20.

Widow, aged 62, of M.D. Edin. who died in 1906. Left with a son and daughter. The daughter, now 29, is a dispenser at £2 10*s*. a week, but does not live at home. Son, aged 26, suffers from defective hearing and is only able to get odd work, which amounts to about 15*s*. a week; he is otherwise dependent on his mother, whose total income amounts to about £90 per annum, less rates at £10 10*s*. a year, the house belonging to applicant. Total Fund grants £30. Voted £18, a renewal of previous grant.

Subscriptions may be sent to the honorary treasurer, Sir Charters Symonds, at 11, Chandos-street, Cavendish-square, London, W. 1.

WEST KENT MEDICO-CHIRURGICAL SOCIETY.—meeting will be held on Friday, Dec. 9th, at 8.45 P.M., at t Miller General Hospital, Greenwich, when Mr. Victor Bonn will deliver the Purvis Oration, his subject being Puerpe Sepsis.

NATIONAL COUNCIL FOR MENTAL HYGIENE.—Dan Mary Scharlieb and other speakers are to address a pub meeting, to be held at the College of Nursing, Henriett street, Cavendish-square, W., on Friday, Dec. 9th 4.45 P.M. Lord Southborough will preside.

SAFEGUARDING OF KEY INDUSTRIES.—The Treasu have made an order exempting the following articles fr Key Industry duty until Dec. 31st, 1928: bromural (dorn gene), eukodal, lithium carbonate, lithium hydroxide, nic hydroxide, papaverine, potassium permanganate, quini ethyl-carbonate, resorcin (resorcinol), and styracol (guaia cinnamate).

HOME OFFICE INDUSTRIAL MUSEUM.—The Hon Office Industrial Museum, Horseferry-road, Westminst will be open to the public from Monday next. It contai a permanent exhibition of methods and appliances securing the safety, health, and welfare of the workers factories and other industrial processes which come und the administration of the Home Office. The King a Queen intend to pay a private visit to the museum to-da Dec. 2nd.

INTERNATIONAL COURSE IN PUBLIC HEALTH.—T medical officers of foreign countries who are in London attend this course visited the Institute of Hygiene Nov. 29th, and, in the unavoidable absence of the Preside Sir Thomas Oliver, were received by Lieut.-Colonel R. Elliot. Members of the course have recently visited ma institutions in and around London, including the laborator of the Metropolitan Water Board, the Royal Sanita Institute, the Museum of the London School of Hygie and Tropical Medicine, the Houses of Parliament, t Maudsley Hospital, and London County Council sch treatment centres. To-morrow (Saturday) they are going see the Treloar Cripples' Home at Alton.

HAMPSTEAD GENERAL AND NORTH-WEST LONDO HOSPITAL.—A luncheon was held at the Savoy Hotel Tuesday, Nov. 29th, to launch the appeal which Mr. A. Milne is making for £20,000 for the hospital, £10,000 which is needed to pay off a debt, £5000 in annual subscri tions to ensure the required income, and £5000 to provi an additional operating theatre and eight extra casual beds to deal with the motor and other accidents broug to the hospital. Mr. H. B. Figgis, the hon. treasurer, w in the chair, and Sir William Collins, the Marquis of Campd Mr. Bransby Williams, the Bishop of Willesden, and M George Waugh (the senior surgeon) also spoke. An amusi and moving appeal from Mr. Milne was circulated, to t terms of which we hope to refer later.

ROYAL DENTAL HOSPITAL OF LONDON.—T annual dinner of the staff and past and present studer was held on Nov. 26th, at the Trocadero Restaurant, unc the chairmanship of Mr. J. S. Amoore. Among the gue were Sir William Goschen, who has just been appoint chairman of the hospital; Prof. W. H. Gilmour, Preside of the British Dental Association; Mr. L. G. Brock, of t Ministry of Health, Dr. A. W. Oxford, and the Deans of t Middlesex and King's College Hospitals. After the loyal to the Chairman proposed the health of the Past and Prese Students. Looking back, he said, what struck him most w the difference between the way in which diseases of the tee were regarded in 1880 (when he had last spoken at the annu dinner) and the present attitude towards them. T importance of dentistry was at long last beginning to da upon the public, and looking forward, he saw a time wh the needs of dental hospitals would be more fully recognis and when these institutions would not have to be large supported, as they were at present, by the profession itse Mr. H. C. Cooper replied for the past and Mr. H. L. Hill the present students, Dand the ean, Dr. Stobie, gave summary of the present position of the school. The numb of the students had dropped from 135 to 104 in the last ye but this had been anticipated some years ago, and was t normal reaction from the big influx just after the war. T entries this term, on the other hand, had been 23 as co pared with 14 in 1926. The teaching staff were tryi their best to benefit the post-graduate as well as the prese students, and to that end had taken steps to form some ki of amalgamation with the general hospitals. This amalgam tion had already taken place for social and athletic purpos with Charing Cross Hospital, and this was a step in the rig direction. Other speakers during the evening were Sir Jo Rose Bradford and Mr. W. H. Dolamore.

Medical Diary.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

TUESDAY, Dec. 6th.—8.30 P.M., ORTHOPÆDICS. Discussion on Fractures of the Spine. Opener: Mr. Geoffrey Jefferson. Other speakers: Dr. George Riddoch, Dr. Bertram Shires, Mr. George Stebbing, and Mr. St. J. D. Buxton. 8.30 P.M., PATHOLOGY. Laboratory meeting at the Laboratories of the Imperial Cancer Research Fund, 8–11, Queen-square, W.C. Papers and demonstrations: W. Cramer: An Experimental Study of Precancerous Conditions. A. M. Begg and J. A Murray: Histopathology and Histogenesis of a Filtrable Endothelium of the Fowl. J. A. Murray: Demonstration of Preparations of Lymph Nodes of the Fowl. R. J. Ludford: Microchemical Cytology (demonstration). Other papers and demonstrations.

WEDNESDAY.—5 P.M., HISTORY OF MEDICINE. Papers: Fleet Surgeon W. E. Home, R.N.: Francis Home, 1719–1813. Professor of Materia Medica in Edinburgh. Surgeon Rear-Admiral Sir Reginald Bankart: A Note on the "Weekly Medico-Chirurgical and Philosophical Magazine." 4 P.M., SURGERY. Meeting at St. Thomas's Hospital, S.E. 4.30 P.M., Tea in the Shepherd Memorial Hall. 4–5 P.M. In the Jenner Laboratory: Demonstration of Rapid Diagnosis of Tumours by Staining Scrapings by Prof. L. S. Dudgeon and Mr. C. V. Patrick. In the Physio-Therapeutic Dept.: Demonstrations by Drs. Timberg, J. B. Mennell, and Baucus. In the X Ray Dept.: Demonstrations by Drs. Fildes and Shires. In the North Theatre: Operations by Mr. Howarth and Mr. Romanis. 5 P.M., in the Clinical Theatre. Demonstration of selected cases by Mr. P. Sargent. Demonstration of Genito-urinary cases by Mr. C. Nitch. Demonstration of a group of cases by Sir Cuthbert Wallace. Demonstration of cases showing the results of operation for Osteoarthritis of the Hip by Mr. C. Max Page. Demonstration of Orthopædic cases by Mr. W. Rowley Bristow.

THURSDAY.—5.30 P.M., BALNEOLOGY. Samuel Hyde Memorial Lecture: Dr. Whitridge Davies: Problems and Opportunities for Research in Spa Treatment. 8.30 P.M., NEUROLOGY. Discussion on Traumatic Neurasthenia and the Litigation Neurosis, to be opened by Sir Farquhar Buzzard, followed by the Right Hon. H. P. Macmillan, Sir James Purves-Stewart, Dr. Risien Russell, Dr. W. A. Brend, and Dr. W. Salisbury Sharpe.

FRIDAY.—5 P.M., OPHTHALMOLOGY. Clinical meeting at the Royal London Ophthalmic Hospital, City-road, E.C. Tea at 4.30 P.M. Cases, including a number for slit-lamp, will be shown. A demonstration will be given of apparatus for exercising heterophoria and squint cases. 5.30 P.M., CLINICAL. (Cases at 5 P.M.) Cases: Dr. George Rossdale: (1) A Case of Still's Disease Cured by Intercurrent Diphtheria. Dr. Donald Hunter: (2) A Case of Co-arctation of the Aorta. Dr. D. Evan Bedford: (3) A Case of Primary Sclerosis of the Pulmonary Artery; (4) Aneurysmal Dilatation of the Pulmonary Artery in a Case of Congenital Heart Disease. Mr. Cecil P. G. Wakeley: A Case of Lymphangioma of the Tongue.

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE.

THURSDAY, Dec. 8th.—A meeting will be held at 11, Chandos-street, Cavendish-square, preceded at 7.45 P.M. by a demonstration illustrating the subject of the lecture. The chair will be taken at 8.15 P.M. and Dr. William Fletcher will give an address, illustrated by lantern slides, on Recent Work on Some Malayan Fevers.

BIOCHEMICAL SOCIETY.

FRIDAY, Dec. 9th.—4.45 P.M. (in the Imperial College of Science Metallurgy Theatre, Royal School of Mines, Prince Consort-road, South Kensington). Communications: H. Henderson Smith, M. Hume, and I. Smedley MacLean: On the Presence of Vitamin A and Provitamin D in Yeast Fat. W. T. J. Morgan and R. Robison: Dephosphorylated Methylhexosides Derived from Hexosediphosphoric Acid. J. Pryde and E. T. Waters: Organic Phosphates from Rabbit's Muscle. H. R. Hewer, H. Jairam, and S. B. Schryver: The Chemical Changes Taking Place in the Proteins of Muscular Tissue when Passing into Rigor. H. J. Holman and S. B. Schryver: The Basic Hydrolysis Products of Certain Plant Proteins, and Their Method of Separation. E. J. Candlin and S. B. Schryver: The Relationship of Pectin to Hemicellulose. E. C. Grey: Studies on the Nutrition of Pigeons. R. K. Christy and W. Robson: Estimation of Chlorides in Biological Fluids.

HUNTERIAN SOCIETY.

MONDAY, Dec. 5th.—7.30 P.M., Dinner at Simpsons Restaurant, Bird-in-Hand-court, Cheapside. 8.30 P.M., Discussion on Backache, to be opened by Dr. David Barcroft, Mr. C. Lambrinudi, and Mr. G. A. Macdonald.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, Dec. 5th, to SATURDAY, Dec. 12th.—FELLOWSHIP OF MEDICINE. Lecture at Medical Society, 11, Chandos-street, Cavendish-square, W. Mon., 5 P.M., Dr. R. Travers Smith: Practical Hints in Medicine.—HOSPITAL FOR DISEASES OF THE SKIN, Blackfriars-road, S.E. Special course, afternoons only.—INFANTS HOSPITAL, Vincent-square, S.W. Afternoon course.—WEST END HOSPITAL FOR NERVOUS DISEASES, 73, Welbeck-street, W. Post-graduate course in Neurology. Every afternoon at 4 P.M. until Dec. 17th. Further information from the Secretary, Mayfair 2236.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, W.

MONDAY, Dec. 5th.—10 A.M., Dr. Dowling: Skin Department. 11 A.M., Mr. Tyrrell Gray: Surgical Wards. 2 P.M., Dr. Trevor Davies: Gynæcological Department.

TUESDAY.—11 A.M., Mr. Endean: Demonstration of Venereal Diseases. 2 P.M., Dr. Shaw: Medical Out-patients. 2 P.M., Mr. Sinclair: Surgical Out-patients. 4.30 P.M., Dr. Pritchard: Diabetes Mellitus (lecture).

WEDNESDAY.—10 A.M., Dr. Burnford: Medical Wards. 2.30 P.M., Mr. Donald Armour: Surgical Wards. 4.30 P.M., Mr. Donald Armour: Head Injuries (lecture).

THURSDAY.—10 A.M., Dr. Grainger Stewart: Neurological Department. 2 P.M., Mr. MacDonald: Genito-urinary Department. 2 P.M., Mr. Bishop Harman: Eye Department.

FRIDAY.—10 A.M., Dr. Pritchard: Special Medical Treatment Clinic. 12 noon, Dr. Redvers Ironside: Clinical Demonstration. 2 P.M., Mr. Vlasto: Throat, Nose, and Ear Department.

SATURDAY.—9.30 A.M., Dr. Burnford: Bacterial Therapy Department. 10 A.M., Dr. Owen: Medical Diseases of Children.

Medical and Surgical Out-patients, Operations, Special Departments, daily, 10 A.M. to 5 P.M., Saturdays, 10 A.M. to 1 P.M.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 49, Leicester-square, W.C.

TUESDAY, Dec. 6th.—5 P.M., Dr. W. Griffith: Eczema (1).

THURSDAY.—5 P.M., Dr. W. Griffith: Eczema.

ROYAL NORTHERN HOSPITAL, Holloway-road, N.

TUESDAY, Dec. 6th.—3.15 P.M., Dr. C. M. Hinds Howell: Disorders of Sensation and their Clinical Significance.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION, St. James's Hospital, Ouseley-road, Balham.

THURSDAY, Dec. 8th.—4 P.M., Mr. J. S. Joly: Clinical Demonstration of Urology Cases.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

THURSDAY, Dec. 8th.—4 P.M., Dr. Schlesinger: Complications of Pneumonia.

PEOPLE'S LEAGUE OF HEALTH.

THURSDAY, Dec. 8th.—6 P.M. (at 11, Chandos-street, Cavendish-square, W.), Dr. T. Beaton: Brain and Nervous Symptoms.

UNIVERSITY OF SHEFFIELD POST-GRADUATE CLINICS.

FRIDAY, Dec. 9th.—3.30 P.M., Dr. Abercrombie: Brachial Neuritis.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE COURSE.

TUESDAY, Dec. 6th.—4.15 P.M., Mr. J. P. Buckley: Femoral Hernia, its Ætiology and Treatment.

FRIDAY.—4.15 P.M., Dr. W. M. Roberts: Gastric Analysis in Clinical Medicine and Research.

JAMES MACKENZIE INSTITUTE FOR CLINICAL RESEARCH, St. Andrews.

TUESDAY, Dec. 6th.—4 P.M., Sir George L. Cheatle: Some Recent Views upon Carcinoma as Applied to the Colon. Discussion to be opened by Prof. T. Price.

FRIDAY.—4 P.M. Case Reading and Discussion in which all medical practitioners are invited to take part.

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.C.

WEDNESDAY, Dec. 7th.—4 P.M., Dr. L. R. Lempriere: The Health of the Public School Boy.

CHADWICK PUBLIC LECTURES.

MONDAY, Dec. 5th.—5.15 P.M. (in the Barnes Hall, Royal Society of Medicine, 1, Wimpole-street, W., Colonel P. S. Lelean: The Mind and Health.

Appointments.

BRAMWELL, J. CRIGHTON, M.D. Manch., has been appointed Honorary Consulting Physician to St. Mary's Hospitals, Manchester.

FISHER, S. W., M.D., B.Ch. Dub., Medical Inspector of Mines under the Coal Mines Act, 1911.

SMITH, S. A., M.D., Ch.B. Edin., Professor of Forensic Medicine in the University of Edinburgh.

SYMNS, J. L. M., M.D., B.Chir., Camb., District Medical Officer (Medical Referee) to the Scottish Board of Health.

Vacancies.

For further information refer to the advertisement columns.

All Saints' Hospital for Genito-Urinary Dis., Vauxhall Bridge-road, S.W.—Res. Sen. H.S. and Non-Res. Jun. H.S. At rate of £200 and £150 respectively.

Ashton-under-Lyne District Infirmary.—H.S. At rate of £150.

Barnsley, Beckett Hospital and Dispensary.—H.P. At rate of £140.

Barnstaple, North Devon Infirmary.—H.S. At rate of £150.

Basingstoke, Park Prewett Mental Hospital, nr. Basingstoke, Hants.—Med. Supt. £950.
Birmingham, Queen's Hospital.—Surg. Reg. £100.
Birmingham and Midland Homœopathic Hospital and Dispensary. H.S. £150.
Brighton, Royal Sussex County Hospital.—Hon. Med. Clin. Asst.
Chichester, Graylingwell Mental Hospital.—Jun. M.O. £300.
Croydon County Borough.—Asst. M.O.H. for Tuberculosis. £750.
Derbyshire Royal Infirmary, Derby.—Ophth. H.S. £150.
Dreadnought Hospital, Greenwich.—H.P. and H.S. Each at rate of £110.
Exminster, Devon Mental Hospital.—Jun. Asst. M.O. £300.
Godalming, Surrey, King George V. Sanatorium.—Jun. Asst. M.O. £500.
Hampstead General and North-West London Hospital, Haverstock Hill, N.W.—Cas. Surg. O. and H.S. Each at rate of £100.
Leeds, Jewish Herzl-Moser Hospital.—Res. M.O. £50.
London Homœopathic Hospital, Great Ormond-street, W.C.—Three Res. M.O.'s. At rate of £100.
London Hospital, E.—Cardiographic Dept. Paterson Research Scholar. £400.
London Jewish Hospital, Stepney Green, E.—Hon. M.O. for Dept. for Dis. of Skin.
London Lock Hospital, 91, Dean-street, W.—H.S. At rate of £200.
Manchester, Ancoats Hospital.—H.S. At rate of £100.
Manchester Babies Hospital, Burnage-lane, Levenshulme.—Jun. Res. M.O. At rate of £50.
Manchester Royal Children's Hospital.—Radiologist. £250.
Manchester Royal Infirmary.—Asst. M.O. £35.
Metropolitan Hospital, Kingsland-road, E.—Phys. to Dept. for Diseases of Skin.
Nigeria.—Four M.O.'s for Tsetse-fly Investigation. Each £660.
Perth Infirmary.—H.P. Also Jun. H.S. Each £75.
Plymouth County Borough.—Asst. M.O.H. £750.
Preston and County of Lancaster Queen Victoria Royal Infirmary. Two Hon. Asst. M.O.'s to X Ray and Light Depts.
Queen Mary's Hospital for the East End, Stratford, E.—Res. M.O., H.P., H.S.'s, &c.
Reading, Royal Berkshire Hospital.—H.P. At rate of £150.
Royal Northern Hospital, Holloway, N.—H.S. At rate of £70.
Royal Waterloo Hospital for Children and Women, Waterloo-road, S.E.—H.P. At rate of £100.
St. Bartholomew's Hospital, E.C.—Surg. Also Phys. to Skin Dept.
St. John's Hospital for Dis. of the Skin, 49, Leicester-square, W.C. Pathologist. £100.
St. Marylebone Hospital, Ladbroke-grove, W.—Third Asst. M.O. £300.
Salford Royal Hospital.—Res. Surg. O. £200. Also two H.S.'s., H.P., and Cas. H.S. Each at rate of £125.
Salford Union Infirmary, Hope, Pendleton, Salford.—Two Asst. Res. M.O.'s. Each £275.
Sheffield Royal Infirmary.—Two H.S.'s., Asst. Cas. O., and Jun. Aural and Ophth. H.S. Each at rate of £80.
Stamford, Rutland and General Infirmary, Stamford.—H.S. At rate of £200.
Stoke-on-Trent, City of.—Res. Asst. Tuberculosis O. £500.
Stockport Infirmary.—Asst. Surg. O. to Ophth. Out-patient Dept. Also Asst. Surg. O. to Aural Out-patient Dept.
Swansea Hospital.—H.S. to Ophth. and Aural Depts. £150–£200.
Todmorden Borough.—M.O.H. and S.M.O. £800.
Western Ophthalmic Hospital, Marylebone-road, N.W.—Sen. and Jun. Non-Res. H.S.'s. At rate of £150 and £100 respectively.
Wigan Infirmary.—Third H.S. At rate of £150.
Willesden General Hospital, N.W.—Vacancy on Hon. Med. Staff.
The Chief Inspector of Factories announces a vacant appointment for a Certifying Factory Surgeon at Halifax (York, W.R.).

Births, Marriages, and Deaths.

BIRTHS.

CORNER.—On Nov. 22nd, at Welbeck-street, W., the wife of Dr. William Corner, O.B.E., Iraq Health Service, of a daughter.
PATEY.—On Nov. 23rd, the wife of David Howard Patey, M.S., F.R.C.S., of a son.

MARRIAGES.

LISTON—LESCHER.—On Nov. 23rd, at St. James', Spanish-place, W., Reginald Prosper Liston, M.B., Ch.B., of Milner-street, Cadogan-square, S.W., to Katharine Mary, eldest daughter of T. Edward Lescher, O.B.E., and Mrs. Lescher, of Birkdale, Lancs, and London.

DEATHS.

HALLIWELL.—On Nov. 26th, after a short illness, Thomas Halliwell, M.R.C.S., L.R.C.P., of The Rowans, Lowther-hill, Forest Hill.
MONRO.—On Nov. 21st, at Carlton-road, S.E., suddenly, the Rev. Charles G. Monro, B.A., M.B., B.C., Organising Sec. B.C.M.S., formerly of Ranaghat Medical Mission and Incumbent of St. Silas', Glasgow, Capt., late R.A.M.C.
MOORE.—On Nov. 23rd, in London, following an operation, Dr. G. E. Moore, of Redcroft, Maidenhead, aged 77.
ORAM.—Nov. 28th, after a short illness, in his fifty-third year, Walter Charles Oram, M.D., of 72, Rodney-street, Liverpool, son of the late John Earle Oram, of The Royal University, Dublin, and Professor of Experimental Science in King's College, Windsor, Nova Scotia, and beloved husband of Mabel W. Oram.
STEWART.—On Nov. 23rd, at Cleveland, Claremont-road, Surbiton, after a short illness, Cameron R. Stewart, L.D.S., D.D.S.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Comments, and Abstracts

THE CALDECOTT COMMUNITY.

SINCE the speaker and chairman were held up by t fog, the general meeting of the Caldecott Community, fix for Saturday last, had to be postponed, but the children revue was ample reward to those who overcame the di culties of travel. Opened in 1911 as a nursery school St. Pancras, the Community became in 1917, at the su gestion of some of the parents, a country boarding-sch for slum children. The minimum fee of 10*s.* a week cov but a quarter of the cost of upkeep, and there is no assur income. Yet in spite of untold odds against it the Co munity flourishes, and those who have experienced t inspiring atmosphere of adventure and service that p meates it know that its break-up would be a real loss to t country. "The time has come," says the last annu report, rather pathetically, "when the Community c stand a little wealth; for no amount of wealth would al now the standard of simple life, at which it has arrived necessity and which by freewill it would maintain, believi it to be the happy mean between a life of deprivation a a life of opportunity and pleasant toil." No servants a kept, and the necessary work of daily life is shared children and teachers alike.

At present there are 44 boys and girls, of all ages fr 2 to 17. In addition to being a sociological experiment absorbing interest, the Community is also a research ins tute of the most severely practical psychology. The a is to give every child individual psychological considerati and close personal study, and most of the children of very complicated problems. The academic teaching almost entirely individual; the children work under system which allows them for the most part to plan th own lessons, and ample time is given to outdoor wo Dalcroze eurhythmics, scouting, and cubbing. The econo of the system is proved by the fact that, although only fo hours a day are given to study, no child has ever failed take his or her proper place in class when transferred to secondary school, and they are far ahead of their cla mates in physical fitness. Their crying need at the mom is for a playground, and it is typical of the Community th their chief appeal for financial aid is couched in the wo of a pupil's letter home: "And then, there's our play field: it's all mud in winter, and all we can do is to p tip-and-run in the backyard, with the buckets turn upside down for wickets—which Miss Hayward (she's c secretary) says is a scandal because they get so batte (but she doesn't play)—and when Harrod's van comes we have to break up the game till it goes, and Edgar always get in it, though he knows it means going to and upsetting the sides; and if you knock a ball over wall or through the kitchen window it counts out inste of a boundary."

An essential part of the scheme is the continuous c structive interest taken in all the old pupils. It is obvi that the experiment must stand or fall by the extent which it leads its children into suitable careers. Community is a training ground for the young worker well as for the young child, for girls fresh from school n put in a short time learning child and house manageme They could hardly find a happier place to learn in.

Last year a nativity play was produced, under the wat ful care of grown-ups; this year, in healthy reaction, children demanded to be allowed to produce a revue "by themselves." The result, consisting of a circus, tournament, a dialogue between Mrs. 'Arris and Mrs. 'Igg a Haydn ballet and the Joly, Joly Wat carol, followed a Christmas revel, will never be forgotten by anyone w sees it. Besides illustrating the amazing natural tal which all children possess but very few have the opp tunity of displaying, it has the haunting beauty of a creat masterpiece. It is to be played again on Friday, Dec. 9, and Saturday, Dec. 10th, at 4.45 P.M. On the latter d the adjourned general meeting will also take place a o'clock, and Dr. Crichton Miller will give an address. O the foolish or the unfortunate will fail to secure tickets fr Miss Potter (Caldecott House, Goff's Oak, near Cheshu Herts); the journey by road or rail is an easy one. Michael Sadler has described the work of the Commun as "one of the most interesting educational things England," and the keynote of it is sincerity and "deli in simple things," freedom from affectation and f standards. There can be few places where the real the ideal come so close together.

THE INDUSTRIAL ARTS.[1]

THIS is a short and clear history of the development the industrial arts, with special reference to their prac

[1] By Frederick J. Glass. University of London Press. 19 Pp. 511. 12*s.*

s educational factors. It is a useful and informative book, hich, while it is a guide to hand-training in education, akes an agreeable appeal to the general reader. We can nagine no better introduction to a knowledge of the umerous handicrafts, for the technical instruction is clear, hile at the same time a love of the beautiful nd a taste for work are encouraged. The range of he book is large, for it starts with a description of he habitation of the primitive cave, and proceeds to onsider in order the more advanced types of dwellings volved during the progress of civilisation. This guide to ie evolution of the structure of the house is followed by apters dealing with its furnishing, and thus there is introuced in a logical way information on the various employents of fabrics—metals, leather, clay, glass, and so rth. As an example of the simplicity of the teaching the tes on furnishings show how the doll's house may be holstered, and on this the use of tools, the mechanism joints, and the history of furniture are made to depend. the section which deals with transport, Mr. Glass shows keen appreciation of the curves exhibited by marine ssels, and he stresses the educational value of the observaon of boats and the attempt by children to fashion them en on seaside holidays. The final section on trees should velop a love of nature and encourage any latent artistic ulty in the pupil. The book is well and copiously strated, and its author, who is headmaster of the School Arts and Crafts at Doncaster, writes evidently from ll knowledge of the fine results that may be obtained from ch instruction as he offers.

A READING DESK FOR THE INVALID.

WE have received from Mr. H. H. Arnold, of 81, St. orge's-road, London, S.W. 1, an appliance which he has med the "Readeasy" and which is intended primarily enable invalids to read a book without in any way tting a strain upon the arms or hands. To the sides and ver border of a light tubular U-shaped metal frame, ulded to the contour of the body, is attached an adjustable ap to be suspended from the neck. Projecting from the me, and adjustable as to inclination, is a narrow shelf holding a book. There are conditions where this reading sk should prove of use in illness or convalescence, while traveller on board ship would also on occasion find a for the invention. And for all of us the apparatus might d to the comforts of the armchair.

MEDICAL WOMEN AND THE STUDY OF MENTAL DISEASE.

MEDICAL women who are interested in the problems of ntal disease have formed an association for friendly ationship and discussion of their common problems. e second meeting was held at the Lyceum Club on v. 18th, by invitation of Dr. Bertha Mules and under chairmanship of Dr. E. Casson. After lunch the subt of occupational therapy was discussed. Dr. Jane lker described the varieties of work and handicraft d for tuberculous patients at Nayland. Dr. Casson phasised the danger of providing employment irrespecve of the patient's therapeutic needs, and referred to the tus of the occupational therapy officer, who should have ct relationship with the doctor, she thought, and should be under the direction of the matron. Miss Phillips cribed the initiation of occupational therapy at Virginia ter, and urged the medical profession to get this work er proper control from the start, lest it fall into the ds of quacks. Another question discussed was whether occupational therapy should be carried on in the wards, re apathetic patients might be attracted and drawn in, n a special department to which the patients would be en for so many hours each day. The general opinion ned to be that the two methods dealt with two different ses of patient, and both should play their part. Dr. M. Gamble pointed out that occupational therapy could ssfully begin while patients were still confined to bed. eral speakers emphasised the importance of providing loor work for women patients. Miss F. Gribble described work of the Association of Occupational Therapists in ng to organise the work and the workers, and to provide ntral bureau and a standard of training. After tea C. Shearer opened a discussion on the treatment of the rtified patient. All were agreed that there was a king lack of adequate treatment for these people, and establishment of clinics in every town was urged. The ing of these clinics was a matter of some difference of ion, but most speakers thought that the senior medical er should be a member of the staff of a mental hospital, e assistants might be recruited from among local practiers and part-time junior officers in mental hospitals. er urgent needs were for more hospitals like the Lady hester Hospital at Hove and St. Andrew's Hospital at thampton, and for trained social workers.

edical women who wish further particulars can obtain a from Dr. I. G. Wilson, 154, Clarence Gate-gardens, N.W.1.

THE PRESENT STATE OF THE MEDICAL PROFESSION IN JAPAN.

THE *Internacia Medicina Revuo*, the official organ of the Association of Esperanto Doctors, for November, contains several articles of professional interest and a further small instalment of a new Esperanto Medical Dictionary. In addition, there is an account of the present state of the medical profession and medical organisations in Japan by Koh-Itabashi, which states that while the majority of medical men in Japan have private practices, the difficulty of making a living becomes more and more hazardous, although the number of doctors in relation to the total inhabitants remains stationary. It would appear that the poorer classes are increasing in number, the writer including in these classes small tradesmen and manufacturers, the cause of the increase being attributed to the accumulation of capital in the hands of the few. Another factor in the depreciation of medical practice is the unequal distribution of doctors among the population. Official figures are given which show that there are too many doctors in the urban areas, particularly Tokio and Kioto, and too few in rural parts. With regard to organisations for medical treatment of the poor in Japan, the following particulars are given: (1) medical school clinics, where a definite number of sick are treated free in order that instruction may be provided for medical students; (2) medical organisations supported by private philanthropy and philanthropic bodies—(*a*) "Saiseikuai," founded in 1911 by imperial donations, where the sick poor are treated free on the recommendation of the administrative body of a town or village; (*b*) the Red Cross Society, which does not function in peaceful times; (3) medical organisations supported by public corporations—these comprise a number of hospitals for indigent consumptives, lepers, and insane people; (4) medical organisations in industrial districts—(*a*) in factories (not all factories, however, have such organisations and only 43·4 per cent. of workers and their families are treated at actual cost); (*b*) mining localities, where workers and their families are treated at actual cost; (*c*) industries supported by the Government, in which workers are treated free and receive during the period of treatment eight-tenths of their daily pay, their families being treated at actual cost. The *Internacia Medicina Revuo*, which is published in France, can be consulted at the offices of the British Esperanto Association, 142, High Holborn, W.C.

HEALTH CONDITIONS IN TANGANYIKA.

FROM a report to the League of Nations on the administration of Tanganyika territory for the year 1926, it appears that the population, according to the census of 1921, was as follows: Europeans, 2447, of whom 1598 were British subjects; British Indians, 9411; Goans and Portuguese Indians, 798; Arabs, 4041; Baluchis, 352; unclassified non-natives, 389; natives, 4,107,000. Since 1921 there has been a considerable increase in the European population, which is now about 4200; similarly, trade development has brought into the country a number of Asiatics as storekeepers, clerks, and artizans. The total native population is now estimated as 4,319,000, as against the 4,107,000 recorded at the census of 1921, but it must not be assumed that there has been a general increase of population, but rather that the enumeration is now more accurate In a few districts the registration of native births and deaths has been made compulsory, but it is not possible to guarantee the accuracy of the statistics which have so far been obtained. There is no doubt that a large number of births are not registered owing to the traditional native reluctance to announce such events.

For the financial year 1926–27 the approved estimate of expenditure on medical and sanitary services amounted to £190,616, as compared with £147,701 for the previous year, and the position as regards staff improved materially. The number of European medical officers employed increased from 39 in 1925 to 46 at the end of 1926, the number of Asiatic assistant, senior sub-assistant, and sub-assistant surgeons from 39 to 50, and the number of private doctors registered as medical practitioners in the territory from 8 to 14. These figures do not include the headquarter staff, laboratory staff, entomologist, and dental surgeons. A new hospital at Dodoma was opened, and certain sections of the Central Lunatic Asylum were completed. Several new medical stations were placed under the care of sub-assistant surgeons or compounders.

In regard to attendance of natives at Government hospitals, whilst the in-patients figures show a diminution of the numbers admitted, the numbers of out-patients have increased by a considerable amount. This increase is due to the beneficial results obtained in the treatment of yaws and syphilis with bismuth, which attract large numbers of the sufferers to apply for relief. The reduction in the number of in-patients is believed to be due to the increased facilities afforded for early treatment, the improved

conditions generally under which labour is employed, the expansion of sanitation, urban and rural, and the gradual awakening of health conscience in the African population at large. The total of in-patients in 1926 was 26,640, and of out-patients 342,653. There was a total of 946 deaths recorded during the year, a number of which were due to hookworm and pneumonia. Distinct progress has been made in the direction of maternity and child welfare, and there were 18,969 attendances at the clinics during the year.

While better feeding is provided at many plantations, and the expansion of the medical department has made treatment more accessible than in the past, the local situation at several locations still requires improvement. It is hoped that the organisation for the training of African district sanitary inspectors which is being established will prove of value in this direction. A small school for the training of dispensers in charge of a European instructor has been inaugurated. The movement for providing tribal dressers is an entirely new departure, and is exciting considerable interest among the chiefs. Standard sets of equipment and drugs have been drawn up, and are obtained from London by the provincial commissioners. A pamphlet of instructions, outlining simple methods of treatment and the usage of the drugs, dressing, and equipment, both in English and Kiswahili, was printed and issued. The training includes a short course of elementary practical sanitation such as might be applied to improve the unhygienic conditions of rural villages. Drugs for the treatment of worm infestations, such as hookworm, roundworm, and tapeworm, are provided. Much alleviation of illness amongst the outlying district populations, at present beyond the range of our medical units, should result. Over 30 tribal dressers have already been trained, and a similar number is in training.

A special medical officer was detailed for duty in the Moshi district towards the end of the year, for the purpose of conducting a full investigation into the incidence of tuberculosis amongst the tribes inhabiting the Kilimanjaro and Pare mountains. The interim reports received indicate the necessity of employing one or more medical officers on this work for several years, if not permanently. Progress continues in the campaign against yaws and syphilis. Several medical missions have undertaken treatment with drugs and equipment supplied by the medical department, and 11,599 cases of yaws and 1825 cases of syphilis have thus been treated. The total cases dealt with in the last three years are as follows —

	Syphilis.	Yaws.
1924	4,377	20,741
1925	11,288	74,638
1926	17,751	96,624

The incidence of dangerous infectious diseases throughout the territory during 1926 was very low. A total of 20 cases of small-pox was reported from five districts; no deaths occurred. Cerebro-spinal fever showed no signs of becoming epidemic; only light cases, with four deaths, occurred. With the exception of six fatal cases reported from the remote district of Shirati, an endemic area situated on the Tanganyika-Kenya border, no cases of plague were reported in the whole of the territory. Influenza, as in previous years, has been responsible for the largest number of deaths—viz., 209—the number of cases is not known. All but four of the deaths occurred in the districts of Usambara, Rungwe, and Tabora; the two former are mountainous, cold districts, while in Tabora, although the altitude is not so high, bitterly cold nights occur at certain seasons. In all three districts the climatic conditions are exceedingly favourable for the production of complications, such as pneumonia, amongst an ill-clad population suffering from even a mild epidemic of influenza.

During the year six medical officers have been seconded exclusively for sleeping sickness work. No new foci of infection have been discovered, and the activities of the sleeping sickness staff have been mainly concentrated on the infected areas in the Tabora and Ufipa districts. The policy adopted in this enormous area, approximately 10,000 square miles in extent, has been to concentrate the population in fly-free clearings. Tribal organisations have been maintained, and the people still live under the control of their own chiefs. Up to the end of 1926 seven clearings had been completed, extending over a total area of more than 60 square miles, while two more clearings are still being made. 7500 square miles of fly-infested forest have now been evacuated, and the inhabitants, numbering approximately 14,500, have been accommodated in the clearings. The Masoma-Ikoma infected area is still under investigation. From observations made by the assistant-bacteriologist, who himself became infected with Rhodesian sleeping sickness in this district, it appears probable that the disease is endemic throughout the whole of the fly-infested area round Ikoma, and in a north-easterly direction towards the Kenya border. The population in this area d not as a general rule live in intimate contact with the fly, but acquire infection while travelling through fly belt and when engaged in hunting and fishing expeditions. The disease shows no sign of becoming endemic, and unt the fly can be eliminated, or the inhabitants removed t fly-free areas, sporadic cases will continue to occur. Treat ment, as in previous years, has been almost exclusively b Bayer 205, Fourneau 309, and tryparsamide.

The Tanganyika territory, it is explained in a geographica and historical note, consists of that portion of the forme colony of German East Africa which, under the Treaty c Peace with Germany, the Principal Allied and Associate Powers agreed should be administered under a mandat by His Britannic Majesty. The coast line extends for distance of approximately 500 miles from the Umba Rive on the north to the Koruma River on the south. Along th coast lies a plain, varying in width from 10 to 40 mile behind which the country rises gradually to a platea constituting the greater part of the hinterland. This platea falls sharply from a general level of 4000 feet to the lev of the lakes (Tanganyika, 2590 feet; Nyasa, 1607 fee which mark the great Rift Valley extending northwards t Lake Naivasha. The seat of government is Dar-es-Salaa (population approximately 25,000), a modern town founde in 1862 by the then reigning Sultan of Zanzibar, and sul sequently occupied by the Germans in 1887.

SMITH'S PHYSICIANS' AND SURGEONS' VISITIN LIST, 1928.

THIS well-known diary, almanack, and book of engag ments is now in its eighty-second year of publication. Th pages are ruled for the convenient recording of visits and f entering engagements, while space is provided for addresse cash, memoranda, and so forth. The size of the book slightly in excess of 6 in. by 3 in., and it can be obtained wit spaces for 75 or 100 patients and with or without journ rulings. Bound in cloth boards or in morocco with tuc pocket, and pencil, the price varies from 7*s.* 6*d.* to 12*s.* Th publishers are Messrs. Hazell, Watson and Viney Ld., 16 Shaftesbury Avenue, London, W.C. 2.

TREMATODES IN MAN.

IN bringing out a Reference List of the Tremato Parasites of Man and the Primates (*Parasitology*, Sept. 30t 1927, p. 338), Dr. William Nicoll has rendered a distin service to helminthology, as well as to the practical clinicia The parasites which infest man may usually be found other mammals, more especially domestic animals, but spite of numerous investigations, it must be admitted th our knowledge of several of them remains incomplet Dr. Nicoll gives tabular lists of the parasites and the mammalian hosts arranged in a systematic manner, togeth with an extensive synonymy, and notes their situation the body. The paper terminates with a particularly comple bibliography.

CHOCOLATE AND COCOA.

WE have received from Messrs. Cadbury Brothers, Lt of Bournville, Birmingham, specimens of their well-know chocolates, the samples sent being known as King Georg Mayfair, and Carnival chocolates. Specimens have al been sent of plain eating chocolate, of chocolate with bitt or orange flavouring, and of chocolate in which assort fruits or nuts are embedded. In addition we have receiv a specimen of Bournville cocoa. The hygienic conditio under which the wares of the Cadbury Bros. are produc are known to be of the best; all these things are not on of nutritional value, but are also pure and appetising.

MEDICAL CALENDAR.

WE have received a copy of the Medical Art Calendar f the year 1928 published by J. Philip Kruseman, Noordeinde 9 The Hague, Holland. The calendar, which has n reached its tenth year of issue, contains some 27 photograph reproductions of medical interest, all well reproduced. might be expected, the pictures selected are mostly of Dut origin, many will be familiar to our readers, while t originals of others are to be found in much-frequent galleries. A feature of the collection is the extraordina popularity among the Dutch of dentistry as a pictor subject. The price of the calendar is 6*s.* post paid.

The *London College of Pharmacy for Ladies*, 7, Westbour Park-road, W. 2, which is under direct medical supervisio offers a nine months' course of instruction to women preparation for the Apothecaries' Hall Diploma in dispensi The training facilities at the College are good and the cou may be recommended to women whose abilities are suit to this kind of work.

An Address
ON THE
UBCONSCIOUS FACTOR IN MEDICINE.

Delivered before the Devon and Exeter Medico-Chirurgical Society on Oct. 19th, 1927,

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FROM time immemorial man has realised that mind not limited by consciousness. Plato says: "In all us, even in good men, there is a lawless wild-beast ure, which peers out in sleep." I believe we owe Savage the simile of the iceberg; the conscious nd is that part of the iceberg seen above water, the greater part, at least five-sixths of the whole, nseen below the surface, and it is this which is most ngerous to mariners. Coleridge, whose poem Kubla an was composed during sleep, considered that the ater part of mind was outside consciousness. hese views implied some degree of mental activity he mind apart from consciousness, but only in our n time has a theory of this activity been developed its application to medicine recognised. The innings of this advance were in 1880, when Dr. ef Breuer, a Viennese physician, conceived the a that hysterical symptoms might be dependent on t experience, and discovered a new method of utment. A girl suffering from severe hysteria was notised, and whilst in the hypnotic state she was ed to search her memory for incidents that arose n she had nursed her sick father. She was induced ive these scenes over again and the hysterical ptoms disappeared for good. This preceded the stigations of Charcot and Janet into the same ject. In 1895 Breuer, in conjunction with Dr. nund Freud, published the "Studien über teria" and later Freud, following his own line, eloped his theory of the unconscious and devised process of psycho-analysis. Such was the nning of the modern psychology, which has red our outlook on human life in so many directions. the title of this paper I have used the word bconscious" in a general comprehensive sense, wishing to be bound to any psychological theory. quite unnecessary to give any account of modern s; the teachings and the language of Freud are very text-book, they permeate our novels and azines, and are even shown in the moving pictures. ay be excused, however, if I mention one or two mptions of modern psychology.

he first is that desires and experiences unacceptable he personality can be repressed and entirely otten. This repression is stated to be an active ess and not merely a passive forgetfulness. It is due to conscious voluntary effort. The second mption is that the repressed material is not ant or quiescent within the unconscious mind, rather active and disturbing; it finds expression number of morbid symptoms or peculiarities, and e source of anxiety, phobias, and hysteria.

is extremely difficult to describe a case properly. details are so voluminous that some kind of act is inevitable. Yet it is easy to give a distorted by the mere omission of particulars that seem portant. An account, moreover, can give little of the quantity of work involved. It is often ssible to relate a case without a breach of dence, whilst to disguise a story is very unsatis-ory. Further, in this department of medicine rts are apt to be coloured by the personality of the er. Lastly, it is often impossible to follow up sufficiently to estimate fairly the results of ment.

SOME ILLUSTRATIVE CASES.

I am indebted to Dr. Hugh E. Wingfield for permission to publish the following case, concerning which I have also some personal knowledge.

A girl of 14 complained of nervous fears of full ten years' duration. In company and at boarding school there was little amiss; but at home, where she had her own bedroom, she slept badly and had night terrors. She would not go into certain rooms alone and she was seen to look furtively behind her, apparently to see whether anyone was following her. She would bang doors hard as if she were shutting someone out. She was intelligent and could not say why she did these things.

Under treatment by Dr. Wingfield she was able to recollect childish incidents which had been utterly forgotten. They were, briefly, as follows. When 4 years of age she had a French nurse who was fanatically religious and who told her that unless she kept a crucifix under her pillow the devil would certainly get her! By degrees every detail was recalled—the nurse's staring eyes and her strange conduct. It so happened that soon after this the nurse had become insane. The child had personified the devil as a giant negro with a big stick—a terrible being to meet, especially in the dark. The clearing up of the cause for these fears resulted in a rapid and complete recovery. Ten years have elapsed and there has been no return.

There can be little doubt that if these forgotten incidents of early childhood had not been elicited the phobias would have continued and made life miserable. The parents were altogether unaware of the conduct of the nurse, and the child herself was too young to be able to complain.

Dr. Rivers's classical case of claustrophobia is another good example.

A case of hysterical vomiting may also be mentioned:—

A clever and apparently healthy school-girl was troubled with persistent vomiting. This continued until a forgotten early incident was called to mind. When a very small child an elder sister had compelled her to look at a mummy which her father had brought back from Egypt and thereupon she vomited. Though the episode was forgotten the habit of vomiting continued until the conscious revival of the experience produced a cure.

These cases sufficiently illustrate the important conclusion that long past experiences quite beyond unaided recall are a cause of morbid symptoms. They also show, contrary to the teachings of the pure Freudians, that such experiences are not necessarily sexual in nature. They may be the result of conflict between other instincts, as was abundantly shown during the war when psychoneuroses of many kinds arose from the conflict between duty and self-preservation, or, in other words, between the herd- and the ego-instincts.

The Sexual Factor.

We must not, however, underestimate the great importance of the sexual instinct in psychopathology, especially if the term sex is extended to include maternal instinct. Though most authorities dissent from Freud's theories of infantile sexual experience, it cannot be denied that we find many of the symptoms he describes during the investigation of our patients. That these symptoms are explained by an œdipus-complex or by narcissism is, however, doubtful.

A married woman, aged 42, with no children, consulted me on account of insomnia, intolerance of loud sounds, noises in the head with ringing of bells, fits of weeping, inability to attend to duties, and loss of interest in life. She feared she was going mad, and would become suicidal. The duration of her illness was two years. The uterus had been stitched up to prevent retroversion. Had had many changes of scene. Had tried Christian Science. Had recently had six weeks Weir Mitchell treatment.

Previous History.—Unhappy childhood. Mother and step-mother both alcoholic. At 35 had begun morbid blushing. Naturally artistic, musical, and much in demand socially. Husband 13 years older. He did not care for gaiety but was not jealous. Patient was never pregnant. General health good.

So far the case seemed an ordinary depression, possibly connected with the operation and approaching menopause. One fact suggested a repressed complex. Since her illness she had slept apart from her husband, and she mentioned incidentally that when she said good night she broke into a fit of weeping.

Elicited.—Want of harmony with husband. She had long cherished a secret affection for another man and dwelt on it in day-dreams; there had been no impropriety, but she persuaded herself it was a beautiful experience. Jung's word analysis gave a long reaction to the word "sympathy." There were also long reactions to the words "despise," "low," "big," "long"—which referred to repressed facts of personal history. After about five weeks analytical treatment there was an emotional outburst when a strange and isolated incident was recollected. This brought to light the internal conflict between her duty to her husband and her ideals (for she was a woman of high principle), and her lower desires and unfulfilled wishes.

The genesis of the greater part of her symptoms was now cleared up. The neurosis in a sense gave relief, it entailed long absences from home, it gave ample opportunity for self-pity, and the indulgence in pleasurable day-dreams. The patient herself was quite unaware that these facts had any relation to her illness; indeed, the possibility had not entered her mind. Fortunately, she was a woman of character and determination, and when the position was made clear she faced it courageously. The sleeplessness disappeared, she became cheerful, and was soon anxious to return to her husband.

This happened 20 years ago and there has been no relapse; and she is leading an active and useful life.

Here is a case of automatic wandering:—

A lecturer at a technical college, after a bad night, disappeared from home at 11 A.M. leaving a note saying he had lost all hope. He also left an obscure message in German referring to departure for ever and ever. He returned on his own accord at 7.30 P.M. and could not say where he had been until he had found himself on a seat over 300 yards away. He was cold, footsore, and had worn out the backs of his trouser legs with walking.

There had been two previous attacks, the first when, after a difference with his father as a boy, he had been lost some hours and could not remember what he had done. The second attack occurred six weeks after marriage, when he was depressed and confused and said something to the effect that it would be easy to strangle his wife. This he could not afterwards recollect. His brother-in-law thought him hysterical. He rapidly recovered and gave a lecture as usual the same evening.

There was no history of fits or of petit mal. He was popular and very hard working.

His medical man had discovered the immediate cause before I was consulted. Although married, he had abstained from sexual intercourse apparently for financial reasons. When normal marital relations were established there was complete relief and the depression and irritability passed off.

Why under such circumstances mental dissociation should occur I do not know. It is evident that in this individual any strain tended to be expressed in this way.

Sometimes investigation discloses internal strains for which no direct relief is possible. One of the most unsatisfactory is the homo-sexual tendency, where the company of the same sex alone gives gratification. Some have attempted to explain the tendency by assuming a diversion of natural instinct through a "mother-fixation" in early infancy. I am inclined to think it is really due to a congenital disposition of sex elements. However it arises, many of these persons are condemned to perpetual repression, and unless they understand their own peculiar nature, life is hard and hopeless. When, however, the position is grasped they can devote themselves to hard and useful work and find consolation in altruistic effort. Similar difficulty arises in marital incompatibility, which, but for careful investigation by the physician, might not have been recognised as the cause of a neurosis.

CONTENT OF THE SUBCONSCIOUS MIND.

When we attempt to consider the nature of the subconscious mind we are at once in very deep water, and may easily be carried away by metaphysical speculation. The Freudian school habitually use the term "the unconscious," thereby suggesting an entity with special functions. Freud is a determinist, and for him every symptom has a cause in the experience of the individual, and he concludes that there is some physical basis in the nervous system for every mental process. The unconscious therefore contains primitive ideas and instinctive desires as well as repressed material. The deeper the analysis goes the more the native instincts are laid bare. Thus successive layers as it were of character-formation are peeled off unt the natural elementary mind is reached. This devoid of morals and is only influenced by the pleasu pain principle. It seeks the gratification of its o desires regardless of anything outside. Freud furth teaches that if the investigation be carried far enou the instinct concerned is found to be sexual in eve case.

The Zürich school, founded by Jung, finds in t unconscious elements that are not individual a personal. Jung states that if the analysis be continu after all the individual experiences are elicited, n elements appear which may be dangerous. He assun the existence of a "collective unconscious," and s "We are now obliged to differentiate a perso unconscious and an impersonal one, the absolute collective unconscious, which is detached from wl is personal and is absolute and universal." Speak of the content of this he says: "The primord images are the most ancient and deep thoughts mankind. They are feeling just as much as thoug and might be termed thought-feelings." Here Ju finds the common source of myths, primitive religio and the idea of soul, spirit, god, fertility, migt prestige, and, strange to say, curative remed Hence it would seem that the widespread notion t every disease must have a specific remedy, and ev poison an antidote, comes from the collective unc scious common to all men.

There is no doubt that our unconscious mind h us in our thinking. I suppose all of us have fou that after a good night's rest difficulties are of solved that formerly had baffled us. Readers "Across the Plains" will remember that Steven tells us the dramatic window scene in "Dr. Jekyll Mr. Hyde" came to him in its entirety whilst he asleep and dreaming.

Some years ago, when on holiday, I met a Scot manufacturer who told me that one night he aw finding himself declaiming a long poem. His urged him to write it down at once, but he could recollect one stanza—

> And what are thoughts,
> But birds which light and fly?
> And what are words
> But traps to catch them by?
> Many are dead and cast to Lethe River
> But some survive as joys encaged for ever.

My friend had never written a line of poetry in life; he could recollect no source. I made inq through a literary paper and could trace nothing it. It is, of course, possible that a memory store his mind had reappeared in these striking lines, it is said there is nothing new under the sun. explanation, however, seem insufficient.

Rivers says:—

"Many lines of evidence are converging to show tha great accomplishments in human endeavour depen processes which go on outside those regions of the mi which we are clearly conscious. There is reason to be that the processes which underly all creative art, litera or science take place unconsciously or at least unwitti It is an interesting point whence comes the energy of w this work is the expression."

All will probably agree that some kind of thin takes place in the subconscious mind. The awk phrase "unconscious cerebration" represents actual process. In a recent number of the *Journ Mental Science* (July, 1927) Dr. Winslow Hall r to the subconscious measurement of time, and he conducted a series of experiments which show clusively that a time-sense exists and that it w best below the threshold of consciousness. He refers to the extraordinary accuracy of time-meas ment shown in post-hypnotic suggestion.

This strange unexplored region of our minds con stored memories of countless unremembered ex ences, and in some way these are integrated to our characters. When we are confronted wit emergency our response is rarely thought out, b usually spontaneous; its general nature is determined by decisions and opinions taken long and apparently forgotten. But this conception

help in understanding what goes on below the reshold. Whence come inspiration and originality? hat directs the subconscious flow of thought? hat launches our dreams? We may also ask whence mes the power to appreciate the three great concepts truth, beauty, and goodness?

In attempting to look into these inner mysteries can hardly see farther than Matthew Arnold in The Buried Life"—

> "But often, in the world's most crowded streets,
> But often, in the din of strife,
> There rises an unspeakable desire
> After the knowledge of our buried life,
> A thirst to spend our fire and restless force
> In tracking out our true, original course;
> A longing to inquire
> Into the mystery of this heart which beats
> So wild, so deep in us, to know
> Whence our thoughts come and where they go.
> And many a man in his own breast then delves,
> But deep enough, alas, none ever mines:
> And we have been on many thousand lines,
> And we have shown on each talent and power,
> But hardly have we, for one little hour,
> Been on our own line, have we been ourselves."
>
> * * *
>
> "Yet still, from time to time, vague and forlorn,
> From the soul's subterranean depth upborne
> As from an infinitely distant land,
> Come airs, and floating echoes, and convey
> A melancholy into all our day."

Must we always assume that the mental processes ch go on without our knowledge are regressive in ure and represent the "wild beast" within us all? en dealing with subject matter outside our ken we not be sure of anything. Yet there is evidence that unconscious mind can be trained. Stevenson tells he trained his mind so that dreams, which at one e were distressing in the extreme, became useful, he speaks of the help he received in his work from e little people of his dreams." So far as dreaming oncerned, I feel sure that dream incidents are not ely the wish-fulfilments of instinctive desires. ients have often told me they never dream, and when asked to write down their dreams for the pose of analysis, almost invariably they bring ity of dream material. Moreover, I am not sure this is solely the expression of the unconscious d, and I fancy that patients will sometimes in d faith dream in accordance with expectation.

single woman consulted me on account of obsession of y unpleasant nature which caused her constant distress. had been a cheerful, active church worker and had ed her parents through long illnesses in the most lfish way. Many years before she had been engaged to arried, but the engagement was broken off by mutual ent. This she had never regretted; the man was now ied happily and had children. In the course of an sis these facts and many other details of her personal ry were elicited and, as so often happens, it transpired all questions of sex had been taboo during her childhood adolescence. These were frankly ventilated, and e long she began to dream repeatedly of her former é, Mr. S. Finally, she came to me with a dream to the that she had met Mr. S. in a large store and he was attentive, but she did not respond to any advances ade; and then he went to another department and ht her a doll.

is rare for the symbolism of a dream to be so trans- t as this, yet the patient did not at first grasp its icance. I had an uncomfortable feeling that the peutical conversations had, shall I say, prepared the nscious mind so that the dream appeared.

ortly after this the patient improved and remained better, but was not really well for many years.

MENTAL "MECHANISMS."

eud, in elaborating his psycho-analytical theory, ntroduced a number of technical terms to describe al processes which take place unconsciously. e are now so familiar that they require no nation. By repression painful conflicts become nscious, and the repressed material causes onversion, hysterical symptoms; by dissociation, es; by projection, phantasies and delusions; by ssion, a return to infantilism, and so forth. On other hand, by sublimation, the repressed energy an outlet in more healthy ways, as hard work or altruistic effort. These terms are part of a large vocabulary of words in everyday use in Freudian psychology. I have always felt an objection to the use of words having a spatial meaning in reference to mental processes, though they may be unavoidable. Breuer says: "All too easily one gets into the habit of assuming that behind a substantive there is a substance." That we are using metaphors in speaking of mental processes is forgotten and the metaphor itself is manipulated as a material thing. This has happened to the terms conversion, projection, substitution, &c. The widely used term "mental mechanism" is objectionable in describing the activities of the mind. Moreover the Freudian theory seems to imply there is a conservation of mental energy. Thus Freud says: "In both cases the libido behaves like a stream, the principal bed of which is dammed; it fills the collateral channels which until now have been empty." I find such terms misleading. Can there be any mechanism in mind, or is it proper to assume that repressed ideas must find an outlet, and that if diverted or held back, they are governed by the laws of hydrostatics?

Mental energy is something living, and we must not assume that it is fixed or limited in quantity until some means of measuring it has been discovered.

The late Dr. Maudsley says in one of his lectures:—

> "An impassable gulf lies between the measurement of the perceived energy—that is the objective energy which can be handled and for which all the world can agree on a common unit of measurement—and the subjective state, which is intangible and for which no common unit of measurement is possible. How measure the thrill of a pang of grief? The heat of a flash of rage? The corrosion of an envy? The vibrations of a ray of hope? The leap of an inspiration? How sound the depths of sympathy? or estimate in millimetres the height of a vaulting ambition?"

ANALYSIS AS A THERAPEUTIC AGENT.

The term psycho-analysis should be restricted to the technique introduced by Freud, for it presumes the validity of his theory of the unconscious. The process consists of "free association," in which the patient frankly and unreservedly gives expression to any ideas that enter his mind. This is supplemented by dream analysis, in which free association is applied to the material elicited from dreams. Any kind of suggestion is disclaimed. Thus Stoddart writes:—

> "The doctor says as little as possible, but merely keeps the patient to any line of association initiated by him (the patient). He tells the patient absolutely nothing and scrupulously avoids suggestion of any kind."

Stoddart adds, however, that it is permissible "to comply with his request to give an explanation of a psychical mechanism which has become obvious to him but incomprehensible." On the other hand, Freud himself speaks of the great psychical effort required by the physician to overcome the barrier created by repression. He also says:—

> "A psycho-analysis is not an unbiassed scientific research, but just a therapeutic invention. The physicians give in psycho-analysis every time to the patient the respective expectation-ideas by means of which he shall be able to recognise that which is unconscious and seize it . . . without such help no one can get on."

Evidently the master is sounder than his pupils. Surely it is obvious that during intimate conversations of an hour's duration five or six times weekly for months together, the physician continually employs suggestion, whether he wishes to do so or not. Moreover, the explanations he gives inevitably create a bias, and his own opinions must be slowly conveyed to his patient.

Although more than 20 years have elapsed since psycho-analysis was introduced its place in medicine is uncertain. It has achieved striking success in the treatment of intractable cases of hysteria and other psychoneuroses; but its use is limited, for it makes a great demand on both physician and patient. It involves such an extraordinary expenditure of time and trouble that only in very exceptional cases does it appear practicable.

Modifications of Freud's methods have been widely adopted, and, I have little doubt, will displace the original psycho-analysis. They may be called psychological or mental analysis, which is not limited in practice by any preconceived theory; moreover, suggestion is openly used. Some practitioners advocate hypnotism, as Freud did originally, and others aim at creating a quiescent half-conscious condition—the hypnoidal state—to facilitate analysis. In this state suggestion is not used directly to promote recovery, but indirectly in order to uncover the repressed ideas and conflicts. Often quite a few conversations suffice to elucidate these factors and render possible a new adaptation for life's demands.

Some mention must be made of "transference," a term introduced by Freud to denote the altered emotional attitude of the patient towards the physician. This may be either one of affection or of hatred. Freud and his school say that infantile sexual love is liberated, and is no longer fixed on the father or the mother, but is transferred to the physician. However this may be, there is no doubt that the physician frequently obtains an extraordinary ascendancy due to the patient's passionate regard for him. Analysts are apt to make light of this, considering it a mere episode in the course of treatment, which will pass away as the analysis progresses, but it is easy to see that delicate situations may arise, and the integrity of the physician may be challenged.

In the endeavour to understand a patient's conflicts we are frequently confronted with ethical problems. The physician cannot escape by saying that these are no concern of his, for the patient needs a new modus vivendi, and the situation has to be faced. Even though the physician offers no opinion and gives no advice, his own attitude to the ethical problems of life can hardly fail to produce an effect. Here is one of the greatest difficulties of analysis. Before we can recommend a patient to undergo this searching investigation we must know something of the analyst. The question is a delicate one. Judging from the published writings of certain psycho-analysts, their fitness for conducting the education of a young person is questionable. Which of us is really fitted to give an opinion on moral issues? Our medical education avails us little in these matters.

Another tendency that seems hurtful is the divorce of psycho-analysis from general medicine. I have heard of analysts who refused to make a physical examination and said that this must be done by some other physician. I have also heard of the prolonged analysis of patients with organic nervous disorder such as disseminated sclerosis. We must be physician to the whole patient—body and mind alike.

Though I have criticised the psycho-analytic theory, I do not wish to undervalue its contribution to medicine. It is true that some of the developments of the theory are so repugnant to common sense that the whole position is jeopardised. Sometimes, when we read psycho-analytical literature, we are amazed that medical men can give serious attention to such questionable material. It is not that I object to the frank discussion of the many indecencies that disturb the minds of our patients. The suffering caused by obsessions of this nature is often intolerable, and I have known a patient driven to suicide by them. It is rather the conclusions of the analysts themselves which seem to offend. Thus a patient dreamt he passed through a long tunnel and eventually came out into open and beautiful country. This was confidently interpreted by the analyst to be a symbolic expression of the personal experience of the patient whilst being born!

This is very unfortunate, for Freud has given to medicine a new orientation. The conception of an unconscious "flight from reality," by which persons faced with an intolerable situation escape by a psychoneurosis, is of real value. The process of re-education which leads a patient to recognise this, and consequently to face his underlying conflicts, is an important therapeutic procedure.

The problem, however, is not solved. At present it seems impossible to say why persons react in su diverse ways to these internal conflicts. One becon hysterical, another has an obsession, a third a pseu epileptic fit, whilst a fourth may drink or take to dru or a fifth retreat from the world and live in a state phantasy. Though the mental source of a sympt may be traced, it by no means follows that the trac has therapeutic value. Analysis will throw light on symptoms of general paralysis, but the disease proc is unchecked.

It is essential in treatment that the patient sufficiently intelligent to be able to coöperate, and must be willing and anxious for relief. Analysis rarely of value in persons over 50, as their habits mind are set and their repressions entrench Depressed patients suffering from the manic-depress psychosis are, as a rule, unsuitable, and analysis m precipitate suicidal tendencies. These limitations l out a very large number of patients.

ANALYSIS IN THE PSYCHOSES.

Authorities are agreed that analysis is of li value in the treatment of declared mental dise The exploration of the unconscious mind, w practicable, may explain the strange ideas of insane, but the explanation does not lead to impro ment. This is disappointing, but not surpris The essential feature in recovery after analysis is ability of the patient to readapt himself to the ne discovered facts of life, and most patients with gr mental disease are unable to do this. So far as I aware, only Jung has reported a full analysis i case of dementia præcox. The analysis elucidated symptoms, but the patient derived no benefit. is the general experience.

Opinions differ on its value in confirmed ob sional cases of long duration. Several deci successes have been recorded, and one experier analyst tells me that "really ingrained obsessions the very mischief, but from their very nature they always worth a trial." No doubt we shall all a that many obsessional cases benefit greatly by a g plain talk without formal analysis.

In manic-depressive insanity one would ex success if the analysis is undertaken in the inter between the attacks, for in this disease there is l impairment of health and the patients are often and willing to coöperate. Stoddart is evidently sang and anticipates so complete a recovery that marr and the procreation of children become justifi Yet in practice analysis is most disappointing in disorder.

One case is interesting, as the patient is a scien man, well trained in physiology and possessing acute critical mind.

He had had several recurrent attacks, some epi with excitement, and some with grave depressions suicidal impulses. At my suggestion he consulte analyst, and a month or two later he returned to Retreat in a markedly excited state, expatiating at length on his repressed ideas without any decent reserv and declaring he was cured. He derided all who dic accept the new gospel. The analyst was much conce and wrote to me that it was as if a man undergoing la tomy had jumped off the table and run about wit viscera hanging out! In a short time the patient impr again and the analysis was continued for fully three y I have since had many interesting letters from this pa who is now well enough to undertake some respo work, but he admits that he is not cured and has rec had another relapse.

CONCLUSION.

As one looks back on nearly 40 years' practice recalls many systems of treatment that have tried and found wanting. Pushed by enthusiasts, had their day and ceased to be. Is mental ana but one of the cults which flourish for a time an soon forgotten? Much that is taught, imp though it seems, rests on a slight foundation. professors speak with confidence but lack the cr faculty. They postulate an unconscious which ever be outside our comprehension, and give

onderful vitality. Changes are said to take place ithin it which can never be demonstrated. That is ardly the way of science, and much of the present bric is top-heavy. The whip of enthusiasm may ep the top spinning for a while, but the Freudian eory is inherently unstable.

Nevertheless, the new school of psychology have ade a contribution to medicine of abiding value. ey have shown the importance of subconscious ctors and have convinced us that experiences which ve apparently left no trace may still be potent and n influence our conduct unwittingly. We have rnt much about the meaning of symptoms, and the idy of our cases becomes vastly more interesting. ything which brings the physician into closer rsonal touch with his patients and requires him to ve a more minute and careful attention to their mplaints, anything that helps him to understand eir personality, must be a real contribution to the if not the science of medicine.

I will conclude with two quotations. The first is m my late friend Dr. W. H. R. Rivers, one of the arest thinkers of his time :—

"For the physician who is not content to walk in the ruts when in the presence of the greatest afflictions that befall mankind, Freud has provided a working scheme of diagnosis and therapeutics to aid him in his attempts to discover the causes of mental disease and to find means by which it can be remedied. We can be confident that the scheme as it stands before us is only the partial truth and will suffer many modifications with further research; but that it takes us some way in the direction of truth seems to me certain."

The other quotation is by Miss May Kendall, of York, of whose critical ability I have a high opinion. She was kind enough to read an early draft of this paper, and sent me the following comment. After referring to the value of modern psychology in elucidating symptoms, she goes on :—

"But that is not all. The real evangel of the new psychologists lies in the word 'sublimation.' The mental hinterland which they call the unconscious is something more than a surrounding jungle, from which poisonous growths may spread into that little clearing, the self-conscious life of the ego. It is at worst a territory which, however wild and dangerous, may to a certain extent be reclaimed and made to further the ends of our deliberate intelligence. But it is also a great reserve, which may well contain infinite sources of healing and inspiration, as well as of peril and hurt. And though it offers no smooth high road, we may divine within it many almost imperceptible paths, by which messengers may come and go, and human beings may communicate with fresh reaches of the universe."

RACTURES OF METATARSAL BONES BY INDIRECT VIOLENCE.

TH SPECIAL REFERENCE TO AVULSION FRACTURE OF THE TUBERCLE OF THE FIFTH METATARSAL.

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AND
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A CERTAIN number of cases of fracture by indirect lence about the base of the fifth metatarsal bone e been recorded since the accident was first cribed by Sir Robert Jones,[1] but very little ntion has been paid to the subject in surgical -books. British writers have usually dismissed matter with a general statement that most tures of the metatarsal bones are caused by direct, rushing, violence, and an occasional reference to es's paper. The obvious reason why the particular l of fracture described by Jones was not recog-d before 1902 is that diagnosis in most of these s is possible only with radiography, a method ch had only been available in surgical practice or three years before the publication of the er. It is difficult to explain the subsequent ect of a class of fractures which must be fairly uent, and of another kind of fracture—avulsion ture of the tubercle of the fifth metatarsal bone hich also appears to be not uncommon.

he fracture described by Jones was defined as rring through the base of the bone; but from h description given, and from the radiographic trations, it appears that in the five cases recorded he paper fracture had occurred just beyond anatomical base of the bone, and in a line with anterior margin of the proximal intermetatarsal ulation, just beyond the main attachments of the ng dorsal and plantar ligaments which bind the of the fifth metatarsal firmly to the base of the th metatarsal and cuboid bones. In this situa-there is no displacement of the base of the bone, h remains in its normal position held by the nents; no crepitus is obtained. Sir Robert Jones ribed the fracture as being caused by a sudden ct of the whole weight of the body on the fifth tarsal bone, whilst the heel is off the ground and oot is inverted. He explains the mechanism thus:—

"The prominent base of the fifth metatarsal is closely d to the cuboid and to the fourth metatarsal on every side. So powerful are these ligaments that dislocation of the base is the rarest of accidents. It is obviously easier to break the bone than to dislocate it. When the heel, therefore, is off the ground, the body-weight expends itself on the fifth metatarsal, rotating it slightly inwards. The opposition of this force takes place at its base, where the strongly attached ligaments resist its displacement. A fracture occurs, therefore, exactly where one would expect it to occur, and where our skiagrams illustrate. . . . As reference to the skiagrams will show, all the lines of fracture cannot be traced quite through the bone, but there can be but little doubt but that the fracture is complete."

W. M. Brickner[2] refers to a case published by F. S. Cotton and C. S. Sylvester,[3] in which the shaft of the fifth metatarsal bone broke whilst the patient was dancing, and to five cases, published by Cotton,[4] of fracture through the base of the bone; he also records two additional cases which occurred in his own practice. In both the latter cases, one a boy, aged 12 years, and the other a woman, aged 50 years, fracture occurred apparently on sudden inward twisting of the left foot. Brickner, accepting the explanation of the mechanism of the fracture given by Sir Robert Jones, remarks that fracture may occur (1) above the base; (2) across the widest part of the base, or a little posterior to this: or (3) through the tubercle of the base. D. N. Eisendrath[5] writes :—

"A number of cases have been reported where fractures of the metatarsus occurred in soldiers after long marches, or in jumping or dancing. In the latter two instances the injury is the result of indirect violence. Such fractures may be complete or incomplete. The second left metatarsal is most frequently involved in these painful foot swellings in soldiers. In indirect violence, such as follows dancing, jumping, or sudden twists of the foot, the fifth metatarsal is most often involved."

The few instances in the literature are all of fractures through the widest part of the base, or, more distally, at the junction of the base with the shaft. Brickner, however, without quoting instances, states that the fracture may occur between the tubercle and the rest of the base of the fifth metatarsal bone.

There is, however, another fracture of the base of the fifth metatarsal bone which has to be recognised, an avulsion of the tubercle from the rest of the base. This fracture is caused, in some cases at any rate, by a sudden contraction of the *peroneus brevis* muscle and may occur, as it occurred in some of our cases, whilst the foot is off the ground. In this fracture, also, crepitus is unobtainable; but for a different reason. Instead of the fractured surfaces being held in close apposition, the torn-off tubercle is drawn backwards by the attached peroneus brevis muscle, and tilted upwards in some cases so that there is a wedge-shaped space between the separated fragments, with the base of the wedge downwards.

In some cases, as in Case 1, when the œdema which results from the fracture has subsided, the separated tubercle is found to be freely movable behind the rest of the base of the bone.

Uncomplicated Fracture of Tubercle of Fifth Metatarsal Bone.

We refer first to a series of eight cases, five of which (Nos. 4 to 8) have been treated by one of us at the Lambeth Hospital during the last 12 years; in all these radiographic examination showed that there had been a separation of the tubercle of the fifth metatarsal bone, without any other injury to the foot. In Cases 1, 3, and 4 there was satisfactory evidence that fracture occurred whilst the injured foot was off the ground, so that there could not be any question of injury by sudden impact of the body-weight on the bone. In the remaining cases there was either no evidence that the foot was off the ground at the time of the accident or else a positive history of twisting at the moment, but the radiographic appearances were like those of the three other cases. We regard them all as being probably avulsion fractures, the result of muscular action.

CASE 1, as representing the personal experience of one of us, may be given in detail. Whilst walking quietly along the street, the left foot, when off the ground, was wriggled in the boot, because of a feeling of discomfort in the little toe. Whilst the foot was still off the ground, a distinct "crack" was heard, and a sharp pain was felt, accentuated as the foot came to the ground. It was possible to limp about 400 yards with considerable pain and difficulty. On removing the boot there was a localised tenderness just over the base of the fifth metatarsal bone, and a small, tense hæmatoma developed there within half an hour. By the following day a considerable ecchymosis had appeared beneath the skin on the outer side of the foot extending from the base of the fifth metatarsal backwards to the point of the heel. The foot was rested for 48 hours after the accident; on the third day it was possible to limp about, with considerable pain at times. The hæmatoma gradually subsided, leaving a small, localised, boggy area on the outer side of the dorsum of the foot. When the general œdema of the dorsum had passed away the broken-off tubercle, held between thumb and finger, could be moved easily. The pain subsided gradually, and three months later, when the first radiograph was taken, there was still a little difficulty in walking, with occasional and sometimes severe pain.

Dr. J. O. Harvey, who kindly undertook the radiographic examination, made the following report: "The base of the fifth metatarsal bone has been fractured through with some gaping displacement. There is little evidence, there is a suggestion only, of new bone formation."

Occasional pain was experienced during the next nine months; and 12 months after the accident the tubercle remained separate from the rest of the bone, and was still movable independently when held between finger and thumb. A second set of radiographs taken at this time showed that the space between the tubercle and the rest of the bone had widened, but there was a shadow representing some material which was beginning to fill in the gap. At the time of writing, just two years after the accident, there appears to have been some kind of solid union, and all inconvenience has ceased (Figs. 1 and 2).

CASE 2, communicated to us by Dr. A. H. Williams, was that of a woman of about 30. The patient was playing tennis on a grass court, and Dr. Williams writes: "At the time of the accident she was not, apparently, making any vigorous effort. I was standing at the side of the court watching the game, when I heard a loud pop, as if a stick had been snapped. The lady subsided on the ground and complained of acute pain on the outer side of her left foot. She was at once taken to her home and on examining the foot I found a considerable swelling over the base of the fifth metatarsal bone, which was very tender and painful. No crepitus could be obtained, but X ray illumination showed clearly the nature of the case. She was playing tennis again within 12 months, and now, 18 months after the accident, does not suffer any apparent inconvenience."

CASE 3 was that of a medical practitioner, aged 30, who was playing tennis. As he put his left foot to the ground he felt that it was becoming inverted, made an effort to save himself, and experienced a sudden sharp pain on the outer side of the foot. It is important to note that the patient was quite clear that the pain of fracture did not occur when he felt that he was stumbling, but whilst he was attempting to recover himself.

Cases 4 to 8 occurred in the practice of one of at the Lambeth Hospital.

CASE 4 was that of a boy, aged 15, who, whilst runnin a 100 yards race, felt a sudden pain in the outer side of right foot, which, he was certain, was off the ground at time. In spite of the pain he was able to finish the r The accident happened in August. In the October follow whilst walking quietly about his business, he felt a sud pain in his left foot. Radiographic examination showed the tubercle on the left side had been torn off; the app ances of the fracture were identical on each side. years after the second fracture radiographs were ta for the purposes of this paper; and it appeared that t had been complete union in each metatarsal bone. A v or two after these latter radiographs had been taken, boy, after running for a short distance, felt a sharp in his right foot. It was found that the tubercle on right side had been broken off again.

CASE 5 was that of a warehouse porter, aged 28, who a sudden pain in his foot whilst in the act of lifting a h roll of cotton from the ground.

CASE 6, a woman hospital orderly, aged 40, sli whilst going upstairs. She felt considerable pain in right foot, and it was found that separation of the tub had occurred.

CASE 7, a nurse, aged 21, twisted her ankle in the w She did not experience any serious pain at the time; radiographs showed the appearance of an avulsion fract

CASE 8 was that of a wardmaid, aged 21, who had suf for some time from pain in her foot. There was no hi of injury, and, until radiographic examination show separation of the tubercle of the left fifth metatarsal. pain had been attributed to a giving way of the arch o instep.

Separation of the Tubercle with History of Pos Direct Violence.

The three following cases were instances of se tion of the tubercle with radiographic appeara exactly similar to those already described, but a history of possible direct violence.

CASE 9 was that of a man, aged 65, who was knocked by a taxicab. The patient did not think that the went over his foot, but there was extensive ecchy On radiographic examination a separation of the tu was evident.

CASE 10 was that of a workman who hurt his left and foot by falling off a motor lorry. There was sw of the foot, with localised tenderness over the base fifth metatarsal and separation of the tubercle.

CASE 11, a man, aged 54, was knocked down by a lorry. His left foot was swollen and ecchymosed; but was no abrasion of the skin, and it was not certain w the separation of the tubercle, seen on radiographic exa tion, was caused by direct violence or not.

CASE 12 is one of multiple fracture of the foot by violence in a man aged 45, whose left foot had bee over by a motor lorry. There were multiple fra of the foot, with dislocation of the second and thir and chipping of the lower end of the tibia. This c specially mentioned because radiographic exami showed that, along with other injuries, there had b separation of the tubercle of the fifth metatarsal with the radiographic appearances which are, we b characteristic of the avulsion fracture.

Fractures of the Second Metatarsal Bone.

The next case is of interest because sepa of the tubercle of the fifth metatarsal was co cated by a fracture through the second meta bone. The last two cases are quoted as instan fracture through the shaft of the second meta bone without an history of an injury of any kind

CASE 13 was that of a woman, aged 50, who slipp the step of a tramcar. She fell to the ground, breaki left humerus, and at the same time felt a sharp pain left foot. On radiographic examination it was foun there had been a fracture through the shaft of the metatarsal and a separation of the tubercle of th metatarsal bone.

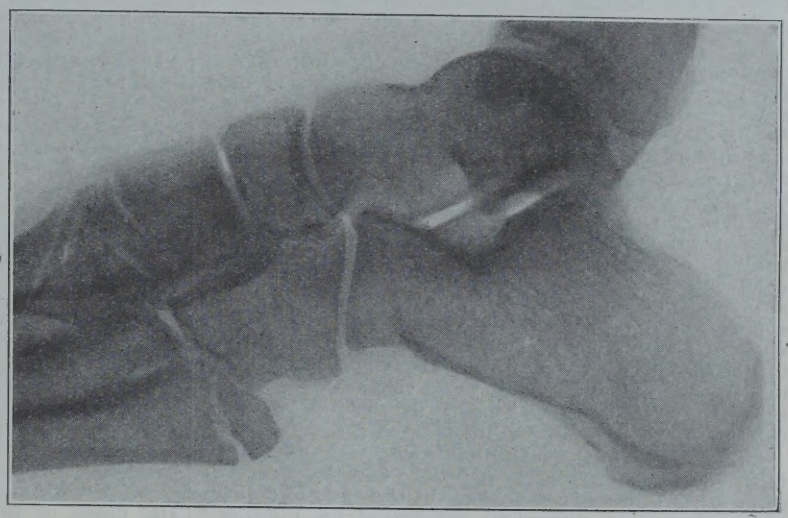
CASE 14, a young man, aged 18, was admitted in hospital complaining of pain in his foot. There was no of any sort of accident, but it was found that the shaft second metatarsal bone had been fractured.

CASE 15, a nurse, aged 21, complained of pain in her left ot after she had been on duty for some little time. Again ere was no history of an accident of any sort, and the jury to the foot was not suspected until radiographic amination showed a fracture rough the shaft of the second metarsal bone of each foot.

General Considerations.

When considering the cause of acture of the tubercle of the fifth etatarsal bone it is impossible, aving regard to Cases 1, 3, and to avoid the conclusion that in me cases the tubercle may be rn from the rest of the bone by uscular action; the only muscle at could be concerned is the *roneus brevis*. In Cases 2, 5, 6, d 7 there is either a history of, a possibility of, a twist of the ot, whilst on the ground and supting the whole body-weight. e find it difficult to imagine circmstances in which the weight the body, thrown on the outer ge of the inverted foot, could be applied as to cause a fracture the tubercle only. Under such nditions the fifth metatarsal ne would break, as Jones demonated clearly, beyond the attachnts of the plantar and dorsal laments, and not behind them. erefore we think it possible that in these cases o the tubercle is broken off by a sharp conction of the *peroneus brevis* in a sudden and oördinated muscular effort to recover from a mble or to avert a fall. When, by accident, the t comes to the ground in a faulty, inverted ition there is probably in most cases an automatic ort to correct the fault by associated action of the *onei* muscles which evert the foot. In a regularly rdinated effort with this purpose the *peronei* act ultaneously, the shorter muscle pulling on the er edge of the foot and the longer muscle on the r edge. If the short, thick *peroneus brevis* should a fraction of a second before the *peroneus longus*, "steadying" effect of the combined action of two muscles is lost, and the foot will be thrown out-

FIG. 1.



CASE 2.—Radiogram showing fracture of the tubercle of the left fifth metatarsal.

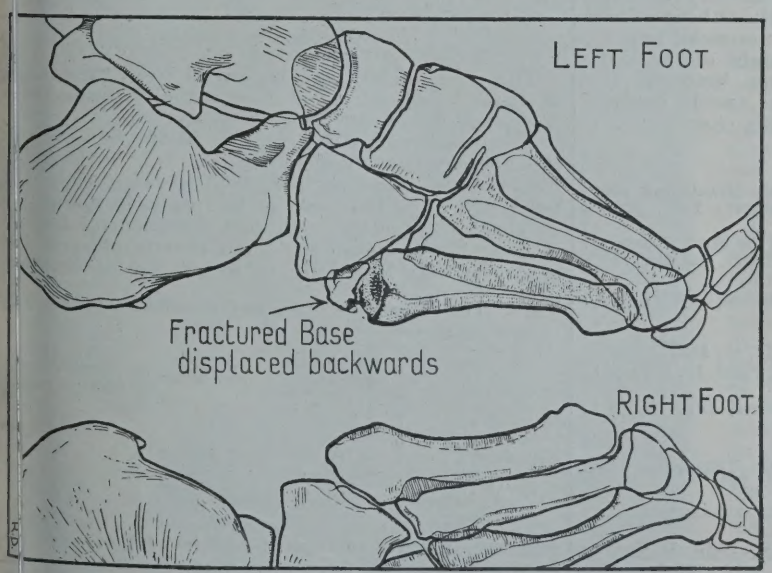
wards with a sudden jerk by the unaccustomed, independent action of the *peroneus brevis*.

Our series includes one case (9) in which it was probable that separation of the tubercle, without other injury to the bones of the foot, had been caused by direct violence, and another case (11) in which a similar fracture was associated with other injuries to the foot. In both these cases the radiographic appearances of the separated tubercle were identical with those seen in what we believe to be undoubted cases of avulsion fracture of the tubercle by muscular action.

Two cases (12 and 14) of fracture through the shaft of the second metatarsal bone without any history of external violence are specially mentioned, because they, like some of the cases of avulsion fracture, suggest an exceptional liability of the metatarsal bones to fracture by apparently slight violence. This special liability of the components of the metatarsal arch to easy fracture makes it appear that the human foot has not yet become fully habituated to the erect position of the body. This is further suggested by the fact that recorded cases show that the left foot is distinctly more liable than the right to accidents of this nature. The left foot is certainly a little less developed than the right in specialisation of function adaptive to the needs of an acquired erect position. Man may be said to be right-footed, as generally he is right-handed. Therefore functional coördination of the muscles of the left foot is the more likely to fail; the left foot is more liable to stumble than the right; and its metatarsal arch is more likely to break under the body-weight than the arch of the right foot.

When considering the apparently slight amount of force which is sufficient, in some cases, to cause a separation of the tubercle of the fifth metatarsal bone, it is interesting to note also that the tubercle may develop as a separate bone. Normally, the metatarsal bones, excepting the first, develop from two centres of ossification—a primary centre for the

FIG. 2.



1.—Twelve months after fracture, showing separation of base of fifth metatarsal bone, with atrophy of the shaft of the bone. (Drawn from a radiogram.)

body of the shaft and for the tarsal extremity or base, and a secondary centre for the distal or phalangeal extremity. But, probably under reversionary influences, the tubercle of the fifth metatarsal may present itself as a separate bone, *os vesalianum* of Pfitzner. Testut [6] had seen only a single case of this, but quotes Grüber as having come across three instances; and Pfitzner met with only one instance of the separate *os vesalianum* after an anatomical examination of more than 1000 feet. Spronk, quoted by Poirier and Charpy,[7] found *os vesalianum* in a newly born infant which showed polydactylism of the hands and feet; each foot had seven toes, the two supernumerary toes being carried by the fourth and fifth metatarsal bones. The separate *os vesalianum* in this case articulated with the cuboid bone and with the base of the fifth metatarsal. A somewhat similar anatomical variation may occur behind the bases of the first and second metatarsal bones, in the form of *ossa intermetatarsa*. The second metatarsal bone appears to be especially liable to what must be called spontaneous fracture, when the fracture occurs without any history of violence. But as the fracture in this case occurs through the thinner part of the shaft of the bone, the possibility of the existence of a separate *os intermetatarsum* is of interest only in connexion with radiographic diagnosis.

The tubercle of the fifth metatarsal being developed from what was originally one of the tarsal bones, it is interesting to note that another of the 11 true ossicles of the tarsus (*os trigonum*) recognised by Pfitzner,[8] in cases in which it has coalesced with the rest of the astragalus, is liable to separation. *Os trigonum*, when attached, is represented by the lateral tubercle on the groove in which *flexor longus hallucis* runs at the back of the astragalus, but occurs as a separate ossicle far more frequently than does *os vesalianum*. Pfitzner estimates that it remains uncoalesced in about 7 per cent. or 8 per cent. of cases. Major Brooke Churchill, R.A.M.C., has recently published [9] radiograms showing the separate bone, and also the appearances in fracture.

There is little to be said about the treatment of avulsion fracture of the tubercle of the fifth metatarsal bone. All the cases, except No. 1, were satisfactorily treated by resting the foot until union had been effected. In Case 1 the fracture was not treated at all, and somewhat prolonged disability was the result. Considering the tendency of the tubercle to be tilted backwards by the attached peroneal muscle, it is obvious that in walking the weight of the body will tend to widen the separation between the tubercle and the rest of the bone, with delayed union as a result—as happened in this case.

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NORFOLK AND NORWICH HOSPITAL.—Sir Kingsley Wood, Parliamentary Secretary to the Ministry of Health, recently opened an extension of this institution, which has been provided by public subscription as a memorial to the men of Norfolk and Norwich who fell in the war. The new building includes a large waiting-room, five consulting and attached examination rooms, rooms for the treatment of ear, nose and throat cases, an operating block, a recovery room for minor operations, and a casualty room.

DUODENAL ULCER IN THE FEMALE

THE CHOLECYSTODUODENAL SYNDROME.

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WHEN we compare statistical tables of the diseases treated in our large hospitals to-day with those of 20 years ago, perhaps the most striking single difference in the present day is the frequency of duodenal ulcer. In the Royal Infirmary, Edinburgh, in 190[illegible] 24 cases of duodenal ulcer were treated, 18 by medical and 6 by surgical measures. During the same year 22 cases of perforated duodenal ulcer were dealt with in the hospital. During 1926, on the other hand, 236 cases were treated, 73 in the medical and 1[illegible] in the surgical wards. Does this difference mean that there has been an actual increase in the incidence of ulcer, or does it merely indicate that diagnosis has improved? It is notorious that we only see what we look for; hence, in part, the great disparity in the recorded incidence of different diseases in the practice of different observers in different districts or, it may be, even in the same district. In view of the number of ulcer cases treated by operation in 1926, the number of cases of perforated ulcer would be expected to show a perceptible decrease if the incidence of the disease had not varied. On the contrary, we find that in 1926 the hospital admitted 102 cases of perforated duodenal ulcer, more than four times the number of 20 years ago, and this despite the fact that, in the small provincial hospitals within the area served by the Royal Infirmary, operations for perforated duodenal ulcer are now quite common. (Table I.)

TABLE I.—*Incidence of Duodenal Ulcer in the Royal Infirmary, Edinburgh.*

1906.					1926.				
Unperforated ulcer.		Perforated ulcer.		Total.	Unperforated ulcer.		Perforated ulcer.		Total.
M.	F.	M.	F.		M.	F.	M.	F.	
21	3	17	5	46	200	36	99	3	3[illegible]

M. = male. F. = female.

The only inference to be drawn from these figures is that duodenal ulcer has actually increased in frequency during the past 20 years.

There is apparently a fairly widespread opinion in this country that duodenal ulcer is rare in the female. Experienced surgeons have told me that they could not recall more than one or two cases in many years of surgical practice. In my experience, duodenal ulcer is much commoner than gastric ulcer in both sexes, so that I venture to record my observations,

TABLE II.—*Incidence of Ulcer Operated on 1921 to 19[illegible]*

—	Duodenal ulcer alone.	Gastric ulcer alone.	Coincident gastric and duodenal ulcer
Males	234	22	33
Females	76	30	18
Total	310	52	51

and with them a statement of what I believe to be a frequent cause of failure to diagnose this disease in the female. Data are now available which point very clearly to the ulceration being infective and, indeed, streptococcal in origin, and it is not unreasonable to suppose that a streptococcus with a special acquired affinity for the duodenal wall is prevalent, and accounts for the increasing frequency of the condition.

Incidence of Ulcer.

An analysis of ulcer cases erated on by me during the st six years shows that, out a total of 413 cases, there were cases of duodenal ulcer in the nale. In 18 of the latter there as a coincident gastric ulcer. able II.)

Duodenal ulcer occurs in the nale, as in the male, at all es. My youngest patient was irl of 16, whilst three patients re 70 or over. The average e at the time of operation was . It occurs both in the thin henic type of female and, per- ps even more often, in the ut, well-favoured type. It urs with almost equal fre- ency in hospital and private ctice (51 in hospital, 43 in vate practice). There would pear to be an undoubted here- ary tendency to ulcer, par- ularly in females. I have had deal with two families in each which three sisters have been rated on for duodenal ulcer. re than 80 per cent. of the ients were non-smokers.

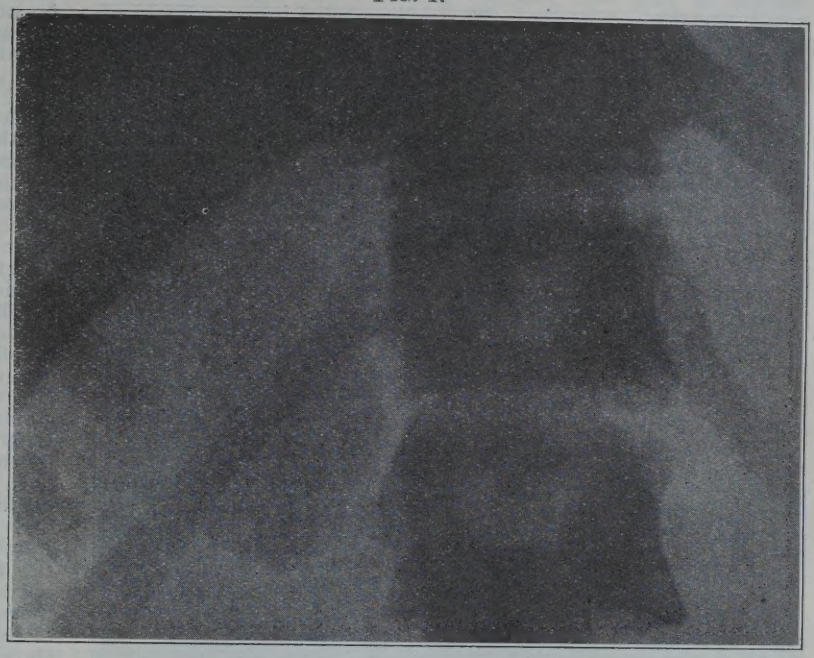
Symptomatology.

n many cases a typical his- y was given: periodic attacks ndigestion with hunger-pain, relief from food, long iods of freedom from symptoms in the early stage, more constant trouble as time went on, but in quite a large proportion (35 per cent.) the history was not classical. Flatulence was often the chief complaint; associated with this were attacks of acute pain, apparently without any definite relation to food, occasionally associated with vomiting and sometimes followed by a faint tinge of yellow in the skin. At such times the patient complained of much acidity and heartburn. On at least ten occasions I have operated on a diagnosis of cholecystitis, only to find a normal gall-bladder and a typical duodenal ulcer.

Gradually we have come to recognise a clinical picture which I have termed the *cholecystoduodenal syndrome*. The patient is usually somewhat stout, complains of "wind" and attacks of pain in the epigastric region to the right of the midline. She is uncertain of the relation of the pain to the taking of food, but has usually lived for some time on a restricted diet, avoiding potatoes and all "heavy" articles of diet. She describes attacks of pain lasting for a few hours, very suggestive of biliary colic. On careful questioning, however, these attacks are found to be less severe than true colic. When questioned as to jaundice, she will state that friends have remarked on a yellowish tint in her skin at these times (duodenitis with catarrh). Leading questions will elicit that at some time or other, and almost always on more than one occasion, she has had an attack of indigestion, lasting for a few weeks, of almost typical duodenal type.

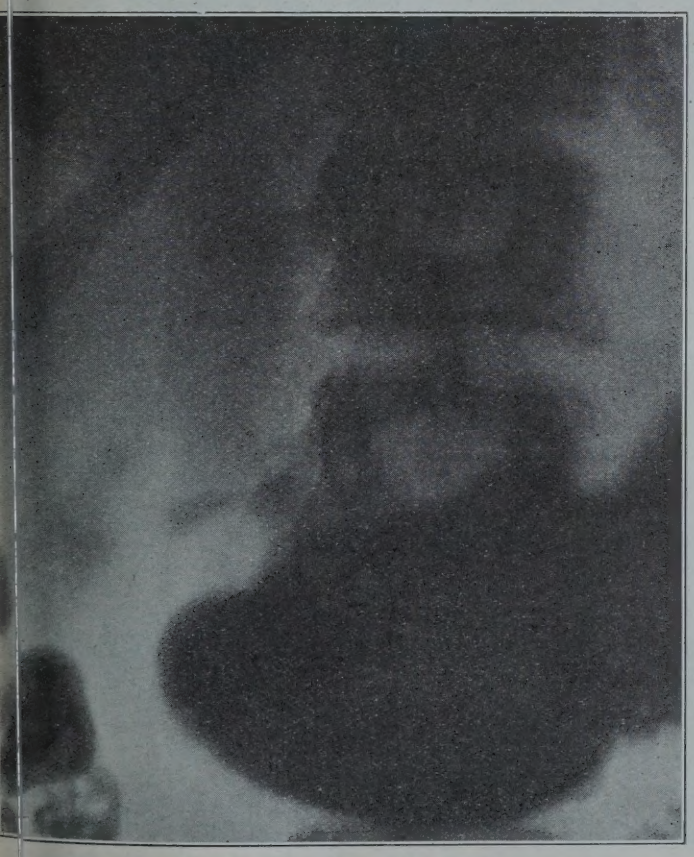
Whether it be that the average female is less observant, or is merely more tolerant of a recurrent pain than the male, or whether the pylorus in the female does not react so readily by recurring spasm to duodenal irritation, is uncertain. It is undoubtedly true, however, that a somewhat vague and indefinite history of flatulence and

FIG. 1.



Radiogram of gall-bladder 12 hours after injection of 3 g. of dye in case presenting cholecystoduodenal syndrome.

FIG. 2.



case as in Fig. 1 two hours after fatty meal and immediately after barium meal. Gall-bladder partly emptied and pronounced deformity of duodenal cap.

FIG. 3.

Faint gall-bladder shadow and deformity of duodenal cap. Early cholecystitis and duodenal ulcer.

irregular pain is the common story in the female. The most probable explanation of the absence of the typical hunger-pain in the female is the prevalence of the habit, among those engaged in household duties, of taking food between regular meal-times and thus of anticipating the onset of hunger-pain. The male, with fixed hours for work, has longer fasts and less opportunity of warding off the hunger-pain. Whatever the cause, it is a fact of experience that in many cases of duodenal ulcer in the female the classical history is not volunteered, and can only be elicited with difficulty, and then imperfectly. In the majority of my cases the patients had suffered from dyspeptic symptoms for many years and, whilst a tentative diagnosis of cholecystitis had frequently been made, their pseudocolic attacks had never been considered sufficiently severe or disabling to warrant surgical interference.

Accurate Diagnosis by Cholecystography.

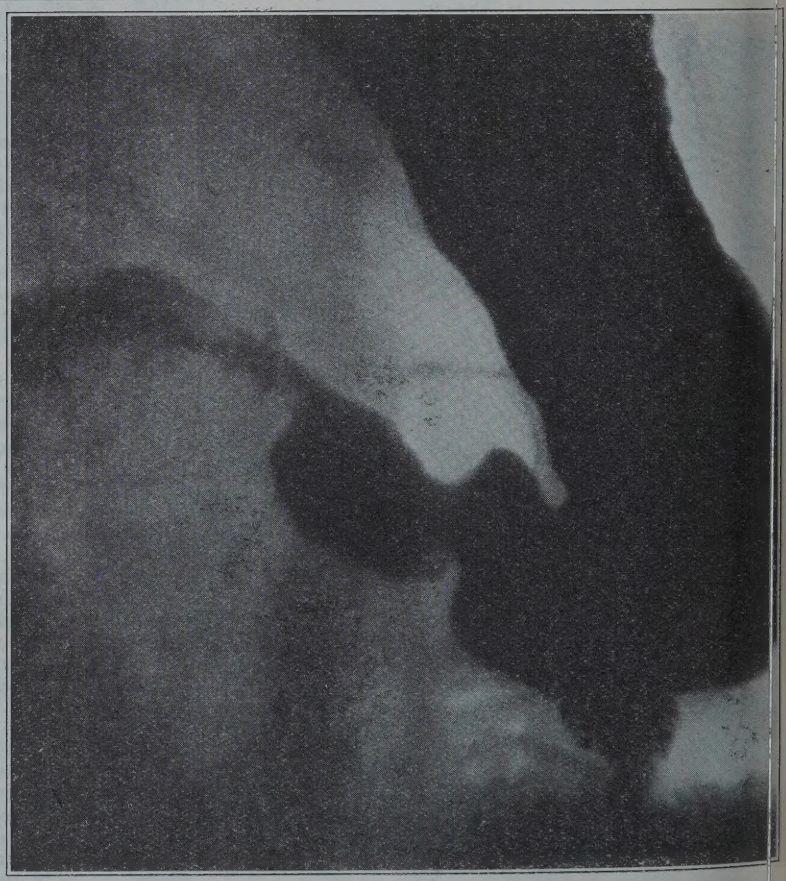
During the past year I have had to deal with five cases, admitted to hospital with a provisional diagnosis of cholecystitis and gall-stones, in which preliminary investigation by cholecystography has led to a positiv diagnosis of duodenal ulcer and norm gall-bladder. The patients have all bee females, and the histories in all were ce tainly more suggestive of gall-bladd than of duodenal mischief.

The technique which we now follo at the suggestion of Dr. Woodbu Morison, is important. On the night admission the patient is given a dose liquorice powder. The following day preliminary X ray photograph is take That evening at 9 o'clock an intraveno injection of 3 g. of sodium tetraiod phenolphthalein is given in 40 c.cm. distilled water. At 9 o'clock the follo ing morning an X ray (with Buc diaphragm) is taken. The patient is th given a barium meal, and the stoma and duodenum observed on the scre and a second photograph taken. 1 P.M. a fatty meal is given, and at 3 P. the final X ray is taken.

In the five cases referred to the ga bladder gave a normal cholecystogra and the barium meal in each instan showed an unmistakable deformity the duodenal cap. (Figs. 1 and 2.) operation, one or more duodenal ulc were found in each case, and the ga bladder was normal. In a sixth case t cholecystogram showed a shrunken ga bladder with stones, as had be expected, but in addition a duoden ulcer. At operation both conditio were dealt with successfully.

I have no hesitation in stating that

FIG. 4.



Same case as in Fig. 3. Stomach allowed to fall over to left, demonstrating duodenal ulcer with stenosis.

e combined cholecystography and barium meal test scribed above we have a most valuable diagnostic d in female patients presenting the cholecysto-odenal syndrome.

Operative Treatment.

I have found that some form of conservative short-cuiting operation has been uniformly successful. here does not appear to be the same tendency to ptic ulcer of the jejunum in the female as in the ale. The relatively mobile duodenum in the female akes a gastro-duodenostomy (Eiselsberg) an easy d safe operation, and I have latterly preferred this a Finney's operation to gastro-jejunostomy as ing more physiological. In the 76 cases in which gastric ulcer was present, posterior gastro-enteros-my was performed in 47 cases, gastro-duodenostomy 20, Finney's operation in 4, and excision with loroplasty in 5 cases.

When a coincident gastric ulcer is present, as it was 18 out of the 94 cases here recorded, the treatment ust vary according to the local condition and the e of the patient. When a chronic penetrating gastric er was present, excision of the ulcer followed by stro-enterostomy was the operation of choice. For all active gastric ulcer, high on the lesser curvature, e cautery was used. In six of my patients, all erly, an hour-glass contraction of the stomach, e to an old and practically healed gastric ulcer, s present; a gastro-gastrostomy followed by stro-enterostomy in the lower sac (five cases), or ouble gastro-enterostomy and a lateral anastomosis ween the limbs of the jejunal loop (one case) gave npletely satisfactory results. In nine cases chole-titis with gall-stones was found, associated with e duodenal ulcer. (Figs. 3 and 4.) In six of these olecystectomy, in two a cholecystostomy, and in e a cholecystectomy and a choledochostomy were formed. The appendix was diseased and was moved in approximately one-third of the cases. I one case, besides the duodenal ulcer, an active stric ulcer, a subacute cholecystitis, and a pro-lirative chronic appendicitis were present. The gall-bladder, appendix, and gastric ulcer were excised, a l a gastro-duodenostomy performed.

have yet to be convinced of the necessity for ensive resection for simple ulcer of either stomach duodenum or both.

Summary.

. Duodenal ulcer appears to be a much commoner ease now than it was 20 years ago. 2. Duodenal er is a common disease in the female, more so n gastric ulcer. 3. The typical history is much frequently given than in the male, hunger-pain n being absent. 4. The "catch meals" of the sewife are probably responsible for the indefinite ure. 5. Under the term cholecystoduodenal drome a clinical picture, often confused with that holecystitis, is described. 6. Operative treatment conservative lines is recommended.

ALKALI TREATMENT IN DIPHTHERIA AND SCARLET FEVER.

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THE present writer [1] showed, in 1918, that an ac osis (a reduced alkali reserve), associated with ke nuria, occurred in the more toxic cases of di theria, and that the administration of alkalies te led to prevent the pernicious vomiting and ci latory failure which may occur in the second w k of the disease. Since then the routine treat-m t of all cases of diphtheria in this hospital has in ded the administration of 30 g. sodium bicar-bo ate, 5 g. potassium bicarbonate, and 7 g. calcium ca onate in four-hourly doses, until the morning u e is alkaline to litmus, which takes three or four days. For younger children the dose is halved. My colleague, F. J. Hector,[2] has confirmed these observations and shows that the reduced alkaline reserve is associated with some defect in carbohydrate metabolism.

In a report on wound shock,[3] it was very clearly demonstrated that experimentally produced "acidosis" will not in itself cause any appreciable symptoms, even when the alkali reserve is reduced to what is probably a lower level than would ever occur naturally. The original explanation of the undoubted benefit derived from these measures is therefore untenable. Richet [4] and others have shown that anaphylactic shock may be prevented by administering saline with the second dose of serum. Moore [5] considered that in a severe toxic state, such as cholera, the crystalloid-colloid balance is upset, and that "electrolytes are wanted to combine with circulating toxic colloids and tissue colloids and to prevent these linking on to each other." Crystalloids are also necessary to tug the toxic colloid through the excreting channels. This is probably the explanation of the advantage of drenching the patient with basic salts. It is important, therefore, to give large doses of these salts in the early stage of disease, to prevent fixation of the toxin to the tissues until the antitoxin has had time to do its work. It is also vitally important to discontinue their administration when the acute stage is over, as an alkalosis may produce an anoxæmia [6] or may damage an already partly poisoned heart.[7] It is interesting to note the craving of febrile children for fruit and their complete distaste for other foods. This may be an instinctive attempt to make up a deficient alkali reserve.

In this communication I attempt to assess the clinical value of these measures from a study of records extending over 18 years. Although we have careful records of 10,000 cases treated with and without alkalis, it is impossible to bring forward incontrovertible statistics because a new and immeasurable factor was introduced—viz., the outbreak in 1920 of a much more severe type of disease which is only now reverting to the former type after a widespread and virulent epidemic. This type was characterised by great swelling of the throat and neck, appearing within 24 hours of onset; by delayed formation of membrane, causing great difficulty in diagnosis, and in many cases by the death of the patient from overwhelming toxæmia within three days. During this time 20 per cent. of the nursing staff were very severely attacked, one nurse dying on the fourth day, although 40,000 units of antitoxin were administered within six hours of the onset of symptoms. This was before Schick methods were used. The death-rate, therefore, is no guide. In fact, the alkali-treated group show a death-rate of 6·4 per cent., compared to 5·6 per cent. for the other group.

I have therefore attempted to arrive at some conclusion by comparing those in each group who showed the cardiac vomiting syndrome.

The Cardiac Vomiting Syndrome.

Between 1903 and 1917 4894 cases of diphtheria were treated in this hospital without alkalis; 148 cases (3 per cent.) showed the cardiac vomiting syndrome. Of these, 102 died (one survived a month, only to die of diaphragm paralysis), 46 recovered—i.e., more than two-thirds died, or 2·1 per cent. of the whole group untreated by alkalis.

In the second group, from 1918 to 1927, 5880 cases were treated by alkalis. Of these, 65, or 1·1 per cent., died with cardiac vomiting symptoms (i.e., half the former number), 148 showed some vomiting with heart weakness, but eventually recovered, while ten of the vomiting cases recovered from the vomiting stage only to expire of diaphragm paralysis. This increase of paralytic cases was also noted after the introduction of antitoxin, and the explanation is probably similar—i.e., that a large proportion of the severe cases lived long enough to develop these symptoms. Therefore, although we are dealing with a much more severe type of disease, with a higher

percentage of vomiting cases (3·8), more than two-thirds eventually recovered, as against one-third in the former group. If the same type of disease had persisted throughout, the figures would have been much more favourable to the alkali-treated group, as in 1918–20 (before the type of disease changed) only six fatal vomiting cases occurred among 1237 patients (0·5 per cent.)—i.e., a quarter of our former steady percentage (2·1).

There is also a striking clinical difference in the two groups. Without alkalis the vomiting is very frequent, is quite uncontrollable in two-thirds of the cases, and ends with bilious and finally with "coffee-ground" material. If vomiting starts in the alkali-treated cases, it is not nearly so frequent or distressing, the vomit never assumes the coffee-ground appearance, and less than one-third die.

Scarlet Fever.

In recent publications by Osman [8] and Berry [9] it is stated that alkali treatment in scarlet fever prevents nephritis and possibly rheumatism and endocarditis. These observations were anticipated by my former colleague, R. Thomas,[10] in 1919, working in this hospital. He stated that "acidosis aids in determining the onset of this complication (i.e., nephritis), and that early administration of soda may reduce its incidence." Since 1918 alkalis have been administered in scarlet fever in the same doses as for diphtheria during the acute stage only, usually for about a week, as Thomas showed that an acidosis with ketonuria was then present.

The experience of this hospital, extending over 17 years, is given in the two succeeding tables.

TABLE I.—*Cases of Scarlet Fever Treated Without Alkalis.*

Year.	No. of cases.	Nephritis.	Arthritis.	Endo-carditis.
1910 ..	582	10	—	3
1911 ..	497	19	17	8
1912 ..	338	11	10	3
1913 ..	408	3	6	2
1914 ..	946	10	26	6
1915 ..	441	8	16	5
1916 ..	343	8	9	2
1917 ..	93	2	5	1
Totals	3648	71	89	30
Percentage attack rate of complications ..		1·7	2·4	0·82

TABLE II.—*Cases of Scarlet Fever Treated With Alkalis.*

Year.	No. of cases.	Nephritis.	Arthritis.	Endo-carditis.
1918 ..	203	6	0	2
1919 ..	249	1	1	1
1920 ..	635	7	4	2
1921 ..	400	3	4	3
1922 ..	607	11	5	3
1923 ..	641	37	5	11
1924 ..	213	3	3	3
1925 ..	417	6	9	0
1926 ..	505	10	43	2
1927 .. (9 months)	420	2	20	6
Totals	4290	86	94	33
Percentage attack rate of complications ..		2·0	2·2	0·77

It will be seen that our experience does not bear out Osman's contention, as there is no significant difference in the onset of complications in the two groups. It will also be seen that different structures appear to be singled out for an attack in different years, so that unless observation is extended over a long period, as well as over a large number of cases, very erroneous conclusions may be drawn. Osman continues the administration of large doses of alkalis throughout convalescence. There is no evidence of any shortage of alkalis in the tissues at this stage, especially if, as in this hospital, the patient is given a vegetarian diet, rich in bases, during the first thr weeks of the illness. We only give alkalis whe we have found definite evidence of a shortage of th alkali reserve—i.e., during the acute stage.

He notes four cases of nephritis in his series 600 cases, one ending in death. In our first grou (treated without alkalis) two fatal cases of nephrit occurred out of 3648 cases. In the second group, treat with alkalis, there was no fatal case of nephritis.

It is well to remember the warning in the Medic Research Committee's Report [3]: "An abnormal high alkali reserve can be as rationally consider undesirable as can a low one; possibly more s since the only method by which the normal level c be rapidly restored is by depression of tissue oxidatio which may give rise to other and more harmf products than fixed acids."

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THE RÔLE OF CARBON DIOXIDE

IN THE GROWTH OF NORMAL AND TUMOUR CELLS.

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THE similarity between the behaviour of norm cells cultured in vitro and of cancer cells growi in the body has not been sufficiently stressed. F instance, kidney cells from an adult rat, when cultur in vitro, exhibit three important cancerous characte (1) they migrate out into the medium; (2) th exhibit de-differentiation; (3) they undergo abunda mitotic cell division. Results obtained with in vi cultures [1] suggested that in normal tissues th tendencies of normal cells were held in check inhibitory factors, and that in the repair followi injury inhibition was temporarily lost, whilst cancer the loss was sustained. Thus cancer would due to a change in the cell's environment, in whi an inhibitory factor is destroyed, rather than one which a stimulating factor is added. It is importa therefore, to discover what are the environmen factors common to cells undergoing cancerous char in the body and cells growing in vitro which sh cancer-like behaviour.

Researches have shown that in the body the ce environment is remarkably constant, so that it h been said that the chief function of the body is ensure a constant environment for its cells, to prot them from the wide environmental variations which the animal as a whole is exposed. This co stancy is largely controlled by the circulation of t blood, which regulates the temperature, the supp of food and oxygen, the carrying-away of wa products and carbon dioxide, the hydrogen-i concentration, &c. The question then arises whet a change in blood-supply is the common ætiologi factor present in all the various pre-cancerous co ditions, such as those which follow chronic irritati radiation, tarring, &c. The numerous pre-cancero conditions occurring in man, or as the result experiments in animals, have been described detail, and form a vast literature, in which there much evidence of a decreased blood-supply. Su descriptions as "obliterating inflammation of t blood-vessels," "perivascular sclerosis," "localis arterio-sclerosis," "hyperplasia of the endothe cells of the capillaries after X rays and radiu frequently recur. If, therefore, an altered blo supply is a common ætiological factor, it would b diminished and not an increased supply. A diminish

lood-supply leads to an interference with the gaseous nsions of the cells' environment which the body at pains to regulate precisely. The following xperiments have, therefore, been made to discover ow normal cells behave when grown in vitro under arious gaseous tensions.

Experimental Details.

Exposures of in vitro cultures to various gases were made McIntosh-Fildes anaerobic jars. For the cultures, hollow-ound slides were used, having grooves cut on either side as to provide free communication with the outside after e cover-glass had been sealed on with paraffin wax. The ltures were placed in Petri dishes, on blotting paper oistened with Locke's solution. The gases used were rogen, oxygen, and carbon dioxide obtained from linders, and hydrogen from a Kipp's apparatus. The aerobic jar was connected with a mercury manometer measure the gaseous pressures, which were controlled by air pump.

Rat kidney cells, rat fibroblasts, and Jensen's rat sarcoma ls were used for culturing. Migration of the cells into culture medium (chicken plasma or serum) was used as measure of vital activity.

Experiments with Oxygen.

No extrusion of cells was observed in the complete sence of oxygen.

This was obtained either by combining the oxygen with drogen in the usual way, so that finally the jar was filled h a mixture of nitrogen and hydrogen; or by first half-ng the jar with carbon dioxide and then washing out the bon dioxide with nitrogen, until the gas coming away e no precipitate on passing through barium hydrate. fore incubation, and in all the experiments with oxygen, mm. of carbon dioxide were added to the contents he jar, so as to lower the pH value of the plasma. Con-trations of oxygen below that of the air were obtained exhausting the jar to a suitable level and filling with rogen.

Table I. gives the results obtained.

TABLE I.

Oxygen pressures in mm.	Kidney cells.	Fibroblasts.	Sarcoma cells.
0	−	−	−
20	−	−	+ V.sl.
40	−	−	+ Sl.
80	+	+	+
150	+	+	+
600	+	+	+

−, No extrusion of cells. +, Extrusion of cells. V.sl., Very slight. Sl., Slight.

There is no difference between the behaviour of kidney cells and that of fibroblasts. In contrast, sarcoma cells exhibit evidence of activity in much lower concentrations of oxygen, though their activity is reduced at low tensions and absent under complete anaerobiosis. Those cells not showing activity under anaerobiosis or low oxygen tensions were not dead, for if favourable gaseous conditions were subsequently applied, extrusion of cells took place, confirming Otomoto's findings.[2]

Experiments with Carbon Dioxide.

Mixtures of carbon dioxide were obtained by exhausting the jar and then filling up with carbon dioxide. Experiments showed that the act of exhausting the jar, even to a few mm., does not prevent the

TABLE II.

pressure in mm.	Kidney cells.	Fibroblasts.	Sarcoma cells.
0	+ Sl.	+	+
10	+	+	+
100	+	+	+
200	+	+	+
250	+ Sl.	+	+
300	−	+	+
400	−	−	−
600	−	−	−

from subsequently migrating out into the medium in normal manner. Table II. gives the results.

Extrusion, therefore, can occur at carbon dioxide tensions far above the 40 mm. naturally found in the tissues. There is no difference in behaviour between fibroblasts and sarcoma cells, but kidney cells do not migrate so readily at the higher and lower concentrations. The absence of migration at 400 and 600 mm. is not due to an absence of oxygen.

pH Values.

Side by side with these experiments, measurements of the pH values of serum in equilibrium with varying tensions of carbon dioxide were made in Prof. E. C. Dodds's laboratories at the Middlesex Hospital by Mr. N. F. Maclagan, to both of whom I am indebted for the following results. Glass electrodes were used, as described by Kerridge.[3] Tubes of serum were left overnight at 35° C. in the jars filled with the mixtures of gases. Tubes of liquid paraffin were also placed in the jars. When the jars were opened the paraffin was at once poured on the serum and the tube tightly corked. The serum was subsequently manipulated under liquid paraffin to prevent the escape of carbon dioxide.

Gas.	pH.
Air	8·49
50 mm. CO_2 + Air	7·25
100 " " + "	6·97
200 " " + "	6·72
300 " " + "	6·60
400 " " + "	6·49
500 " " + "	6·28
600 " " + "	6·25
100 " " + N_2 + H_2	6·94
100 " " + 545 mm. O_2 + Air ..	6·99

It is seen that the tolerance of these cells towards oxygen and carbon dioxide is very different. In the case of carbon dioxide there is an upper limit, whereas for oxygen there is a lower limit. For carbon dioxide there is a tension for optimum cell activity, as this is depressed at low tensions as well as at high. Since variations in blood-supply, by altering the carbon dioxide tension on either side of this optimum, could thus control cell activity, the question arises whether there is any evidence for such control.

Those who take a wide biological view will admit that an acid environment due to carbon dioxide is often an important factor in the manifestation of growth. Loeb[4] has shown that the segmentation of unfertilised ova can be started by subjecting them to a number of chemical agents, of which carbon dioxide and the mono-basic fatty acids are especially effective. It is known that carbon dioxide penetrates living cells more easily than all other substances, not excluding water, and that the permeability of cells so penetrated is greatly altered, so that oxidation is increased and the metabolic rate raised. Carbon dioxide has also a controlling influence in the action of many enzymes, chiefly through alteration of pH values. In plants growth, the building of carbohydrates and many other vital processes vary with the hydrogen-ion concentration in the tissues produced by varying accumulations of carbon dioxide.

Pearstall and Priestley[5] have shown that in plants the cambium layer lies across a steep gradient of pH 3·0 to 6·5, and conclude that growing cells are situate when the pH value is that of the iso-electric points of the principal plant proteins, which is about 4·4. Pauli[6] gives the iso-electric points for a number of animal proteins: albumin, 4·7; casein, 4·6; hæmoglobin, 6·75; and serum globulin, 2·66. It is to be noted that these are all on the acid side. The iso-electric points of the proteins of living cells are not known, so we are thus unable to predict the pH value most favourable to growth in the case of animal cells. Much recent research has been done on the pH value of the interior of living cells.[7] This appears to be remarkably constant in the neighbourhood of pH 5 to 6·5, and hydrogen-ions in the cell's environment are much more effective in altering this than are OH ions. During mitosis, wide excursions of pH value occur.[7] It is also to be noted that the rapid growth of cells seen in tumours and in embryos is associated with a low pH value due to the presence

of lactic acid as well as carbon dioxide.[8 9] The metabolic gradients observed by Child,[10] which he has shown to be intimately concerned with dominance in growth and regeneration, must also condition a carbon dioxide gradient.

Lastly, not only do we find evidence of the origin of carcinoma in situations of diminished blood-supply, but its spread through the body, such as lymphatic permeation, and growth in lymphatic glands, spleen, liver, and bone-marrow, suggests that situations distant from the circulation are favoured. Tumours have not been produced in animals by direct treatment with acids, but Smith[11] has shown that the plant tumours produced by bacteria are reactions to the local production of increased acidity. He has produced tumours by acetic acid and by agents which cause local semi-asphyxiation. It would seem, therefore, that there is evidence that an environment of high carbon dioxide tension encourages cells to anabolise, de-differentiate, and grow, whilst an abundance of oxygen and an absence of carbon dioxide has a reverse effect.

Warburg[12] likewise postulates a chronic anoxæmia as an ætiological factor in cancer, but from a different standpoint. He lays stress on a deficient oxygen supply. He has shown that tumour cells differ from normal cells in that they hydrolise glucose to lactic acid, both in the presence and in the absence of oxygen, much more actively than normal cells, and thus obtain energy for growth under anaerobic conditions.

In our experiments no evidence of cellular activit was obtained in the complete absence of oxygen, eve when glucose was added. On the other hand, Wind obtained growth under anaerobic conditions, usin Rous sarcoma; if, however, the medium was mad glucose-free by dialysis, growth did not occur. Neve theless, our experiments support Warburg's finding in that Jensen's rat sarcoma presents activity at muc lower tensions of oxygen than do normal cells.

No matter whether increased carbon dioxid tension or diminished oxygen tension or both pla a part in the ætiology of cancer, it is evident that diminished blood-supply must result in both, and th part played by carbon dioxide may be very importan

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Clinical and Laboratory Notes.

A NOTE ON THE INDUCTION OF LABOUR IN PELVIC DEFORMITY AND MATERNAL ILLNESS AND ON THE TREATMENT OF ANTEPARTUM HÆMORRHAGE.

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Dr. Henry Jellett in a recent article deprecates the too frequent use of Cæsarean section in the less severe forms of obstetric abnormality.

At the Hull Municipal Maternity Hospital all the patients are kept under observation during pregnancy and malformations corrected by external manipulation where possible. In some cases it is found that even with abdominal pressure the head will just not enter the brim at about the thirty-seventh week. These cases of slight flattening form, according to Whitridge Williams, 95 per cent. of all contracted pelves, and they will not permit a full-term head to pass. Induction of labour is, in my opinion, the best treatment for this class, and also for cases where the mother suffers from albuminuria or decompensation.

Much criticism has been advanced against induction on the ground that a premature child is difficult to rear, but it will be seen from the statistics given below that, where disproportion is the only abnormality, the mother healthy, and the presentation normal, over 90 per cent. of the infants are still alive and well, their ages ranging from three months to four years. Moreover, 100 per cent. of the mothers were discharged alive and with a sound uterus and abdominal wall. Adverse critics also maintain that, if left to nature, some of the cases would perhaps succeed in delivering themselves in spite of apparent disproportion. Even if this be so, it is surely better to err by inducing labour a little prematurely while the risk to mother and infant is almost nil than to leave her to face a protracted labour, which may require Cæsarean section in the end. Even if delivery can be effected by forceps the injury to the mother's genital tract and the fœtal skull are often considerable, especially when the arrest is at the brim.

Induction has been found very useful in severe cardiac decompensation, where the elimination of prolonged labour, shock, and anæsthesia is partic larly important.

The Method of Induction.

Bougies were used in the earlier cases, the avera time required between introduction and delive being five days. I next used Prof. C. G. Lowr toy balloon, the average time then being two and half days. Jacques's œsophageal bougie is now use and reduces the time to 18 hours. Another advanta of this method is that no ladder is left in the vagi up which infection may pass into the uterus. pituitrin has been used, because its effect in a individual case cannot be foretold. The detail treatment of these cases is as follows:—

Where time permits, castor oil, quinine, and hot douc are given on alternate days for three days, as advised Dr. T. W. Eden. In some cases this alone is sufficient make the head engage. Moulding will then take place, a the case is left without further treatment. No quinine given if the mother is suffering from heart disease. If head remains above the brim a hypodermic injection Burroughs, Wellcome and Co.'s tabloid hypod. hyosc co. B. is given, and half an hour later the vagina swabb out and an iodine douche given. A little open ether sometimes required in primiparæ, but not often. T boiled Jaques's œsophageal bougie is now held in the gloved hand, and the patient placed in the lithoto position. The end of the tube is guided into the external by two fingers of the right hand placed in the vagina. Af the use of quinine the os is always patent enough to all the tube to pass. No vulcellum forceps are required desirable. By gentle pressure the tube glides into uterus, care being taken that the last portion passes throu the internal os. The delivery is now left to nature, and tube does not cause any pain or discomfort. It is, of cou essential that as much care be exercised to ensure asep as would be taken if the abdomen were to be opened. No c of pyrexia occurred in the series.

Total Deliveries from January, 1924, to August, 1927=18.

1. For disproportion only—		
Mothers—all living.		
Infants living	42	5
Died during first year (2 were illegitimate) ..	4	
2. For maternal illness or malpresentation—		
Mothers—all discharged alive.		
Infants—Living	6	
Dead	12	1
Cannot trace	3	
Total inductions		7

Antepartum Hæmorrhage.

I have had 68 cases of antepartum hæmorrha in 3400 deliveries. Internal version was perform

times with three maternal deaths; two of the tal cases were pulseless when admitted; 20 of the fants were born alive. In two cases in which I led to turn the fœtus I found after delivery (by ceps) that it was in a state of rigor mortis, the ibs were quite stiff, and the mouth could not be ened. I should be interested to know if this ndition has been frequently observed. Both mothers re in a satisfactory condition.

I wish to thank Dr. W. Allen Daley, the medical icer of health, for permission to publish these notes, d Dr. Susan H. Gilchrist, assistant medical officer maternity and child welfare, for obtaining the er-histories of the infants.

A NOTE ON THE LESS COMMON CAUSES OF OBSTRUCTIVE JAUNDICE.

BY A. RENDLE SHORT, M.D., B.SC. LOND., F.R.C.S. ENG.,
SURGEON TO THE BRISTOL ROYAL INFIRMARY.

SINCE the van den Bergh test and cholecystography vided a means of clinical distinction between onic jaundice due to obstruction of the bile passages jaundice due to other causes, it has become clear t a group of cases exists in which there is obstruc- of the bile passages without either gall-stones, ignant new growth, or cirrhosis of the head of the creas. Patients belonging to this group are ally young women, and the jaundice is persistent, pain is not conspicuous. Three examples of this ical syndrome have recently come under my care; were verified by operation, and the cause was d and removed, the jaundice disappearing in case. Two had enlarged lymphatic glands sing on the common bile-duct; these were rculous in one case and simple inflammatory he other. The third showed a condition which be called vateritis.

Case Reports.

SE 1. *Obstructive jaundice due to tuberculous lymphatic ds.*—Female aged 25. History of jaundice for three ths, running an up-and-down course, the stools some- s clay-coloured and sometimes showing a little bile, rine usually bile-stained, but occasionally nearly clear. rtain amount of colic, like mild attacks of biliary colic, not conspicuous. Diarrhœa at first, and occasional ting. Had had part of clavicle removed for tubercle. and spleen both palpable and enlarged. Gall-bladder elt.

eration showed a small deeply situated gall-bladder, large tuberculous glands in a chain running alongside pressing on the common bile-duct. Glands removed; luct drained. Closed in a week.

e jaundice cleared up. The patient died two years , after a long illness, of which no details are lable, but without jaundice, probably abdominal rculosis.

SE 2. *Obstructive jaundice due to inflammation of hatic glands.*—Female aged 27. History of jaundice ur months, with a week almost free in the middle of lness. Diagnosed at first as ordinary catarrhal jaundice. ever, pain insignificant, except just at the beginning. deeply bile-stained; stools pale. Van den Bergh: —delayed biphasic. Cholecystography: very faint w of gall-bladder, normally shaped.

operation, gall-bladder was not enlarged; no stones no adhesions or thickening. All along the left side of mmon bile-duct were large, soft, red lymphatic glands, as large as walnuts. Several of these were removed. all-bladder and ducts were not opened.

e jaundice cleared up in a week, bile returned e stools, and the urine became normal. The toms have not returned. The glands showed oscopically a simple inflammatory swelling, ably due to the infection that was responsible he original catarrhal jaundice.

CASE 3. *Obstructive jaundice due to vateritis.*—Female aged 28. Jaundice started in September, 1926. Some abdominal pain, but not much. Bowels regular, motions pale. Urine bile-stained. Pulse and temperature normal throughout. No pain since February. Lost 10 lb. in weight. Slight resistance over gall-bladder, suggesting enlargement. Cholecystography: gall-bladder does not fill. Van den Bergh: direct—rapid biphasic.

At operation, in May, 1927, gall-bladder distended, full of "white bile." Ducts distended. Common duct opened, no stone present. Duodenum opened; no stone in ampulla of Vater, though it was thoroughly explored; ampulla very swollen and purple in colour. Common bile-duct distended down to the ampulla; probe arrested there. No obvious cause for the condition of the ampulla. Internal drainage established by a drainage-tube from the common bile-duct to the duodenum through the ampulla. Gall-bladder also drained for a few days.

The jaundice rapidly cleared up, and bile returned to the stools. The internal drain was passed some weeks later.

THE ERADICATION OF BILHARZIASIS: A SUCCESSFUL ATTEMPT IN AN ENDEMIC AREA.

BY M. KHALIL, M.D. BRUX., PH.D., M.R.C.P. LOND.,
PROFESSOR OF PARASITOLOGY, FACULTY OF MEDICINE, CAIRO.

AN attack on trematode infections through their intermediate host, the snail, has been attempted in various countries, especially in the Far East. Many chemicals have been advocated, but the most potent are copper compounds,[1] which were first tried on the actual snail-carriers of bilharzia in 1921.[2] An exhaustive study of the effect of copper sulphate on agriculture in Egypt was carried out prior to the present attempt,[3] which was undertaken, at the beginning of April, 1927, at an Egyptian oasis *Dakhla*, 450 kilometres from the Nile. It is reached partly by railway and partly by desert motor-cars, so that its situation ensured a complete isolation rarely available elsewhere.

Forty per cent. of the inhabitants of the village submitted their excreta for microscopical examination; 63·5 per cent. were found infected with *Schistosoma hæmatobium; S. mansoni* was totally absent. The main stream of the village, originating from an artesian well, was found to contain large numbers of bullinus snails. Copper sulphate was continuously added to the stream for four days and nights by a specially improvised apparatus. The dilution aimed at was five parts of copper sulphate to a million of water. At the end of the experiment all bullinus snails were dead. The water flowing through the stream was calculated at 79·30 cubic metres per hour, and 38·5 kg. of copper sulphate were used.

After six months the area was visited again and carefully surveyed. No living bullinus snails could be found, in great contrast to their abundance before the experiment. The six months interval was the hottest period of the year, and the most favourable time for the propagation of mollusca. The area will be surveyed at intervals, and if the result remains as good, similar experiments will be tried in the Nile Valley itself. No deleterious effects were observed on the vegetations, animals, or man as a result of the experiment.

The details of the trial and the description of the apparatus especially devised for automatically delivering a constant dilution of copper sulphate will be the subject of another publication.

I am indebted to Dr. M. Helmi, of the Research Section, Public Health Laboratories, for his valuable coöperation during that trial.

[1] Chandler, A.: Control of Fluke Diseases by Destruction of the Intermediate Host, Jour. of Agricultural Research, 1920, xx., 193.
[2] Khalil, M., and Lee, C. U.: Bilharzia Infection in the New World, 1921; see West Indian Health Problem.
[3] Khalil, M.: The Control of Bilharziasis, 1924, Reports and Notes of the Public Health Laboratories, No. 6, Cairo, pp. 95–158.

Medical Societies.

ROYAL MEDICO-CHIRURGICAL SOCIETY OF GLASGOW.

AT a meeting of this Society held on Nov. 18th, Dr. JOHN COWAN, the President, in the chair, Mr. ROY YOUNG opened a discussion on the

DIAGNOSIS OF SURGICAL DISEASES OF THE KIDNEY.

In suspected urinary trouble, he said, routine examination entailed: (1) A complete history and a thorough examination of the patient, with blood pressure readings. (2) Chemical and microscopic examination of the urine, and bacteriological examination of a catheter specimen; also a record of the amount passed in 24 hours. (3) Radiography of the urinary tract. (4) Estimation of the total renal efficiency. (In some cases this might be dispensed with.) (5) The first cystoscopy—as essential as retinoscopy was to the ophthalmologist—the whole bladder was examined and the appearance of the ureteric orifices and the rate and character of the efflux from them was noted, together with a colour test. A second cystoscopy might be needed for collection of urine separately from the ureters, for location of stone or for pyelography. Such an examination involved expense and delay; it should stop when it was felt that an accurate diagnosis had been made. The necessity for complete examination of the *whole* urinary tract was, however, shown by the following case:—

A man had been under treatment for nephritis as albumin had been found in his urine. After prolonged treatment without benefit, he changed his doctor. His new adviser got the urine examined bacteriologically; coliform bacilli were found, and the patient was treated with a *Bacillus coli* vaccine. After a time, being regarded as cured, he was sent for a holiday. On the second day of his holiday he had to be admitted to hospital, where a large phosphatic calculus was removed from the bladder. On his return to Glasgow, as he appeared to be no better, he came into the Western Infirmary, where Mr. Young removed an enormous calculus, together with a functionless pyonephrotic right kidney.

Renal Infections.

Mr. A. H. JACOBS said that the symptoms of renal infections might be exhibited in a fulminating, acute, or chronic form, but all types had one sign in common—namely, the urine contained organisms and pus, the latter varying in quantity from a few cells to a thick deposit. Frequent and sometimes painful micturition, occasionally accompanied by a dull ache or pain in the loin, were the usual urological symptoms of which the patient complained. Generally the pyuria was chronic and rational treatment could only be adopted after trying to find out: (1) its source; (2) whether one kidney or both were involved; (3) to what extent the renal function had been impaired and the substance of the kidney destroyed; and (4) whether there was any complication such as ptosis, calculus, or hydronephrosis which would tend to keep up the infection or predispose to its recurrence. In about 90 per cent. of cases the causative organism was the *B. coli communis*. Many pathological conditions—particularly intestinal stasis—tended towards abnormal multiplication of these organisms, which were then readily carried to the kidneys by the blood. In the less common staphylococcal and streptococcal infections evidence of old or recent septic foci might be found on cutaneous or mucous surfaces. On cystoscopy evidence of cystitis was almost invariably found, and this explained the predominance of bladder symptoms in renal infections. Cystitis was rarely a primary disease. In the words of Boyd, "The bladder resembles the stomach, in that it makes its voice heard above that of its neighbours, although it is they that are really suffering." Having found a cystitis, it was necessary to seek further for a focus in the urinary tract, and Mr. Jacobs briefly described some of the appearances that might be found o further examination. He concluded by saying tha he had never seen any serious sequelæ from pyelo graphy, though renal colic was sometimes so severe as to require morphia. He had never carried ou this examination in the fulminating or acute types infections, and did not advise that it should be don except in certain special circumstances.

Tuberculous Disease.

Mr. J. MILL RENTON made the following gener statements:—

1. Although tuberculous disease of the kidney is alwa secondary to some other focus of tubercle, the prima disease is often difficult or impossible to detect.

2. The disease is almost always unilateral to begin wi and tends to remain so for a long period, but shows practical no tendency to spontaneous cure.

3. Its symptoms, in the great majority of cases, a entirely referred to the bladder and consist of frequent an painful micturition associated with pyuria; these may the only symptoms even up to an advanced stage of t disease. In his own experience it has been quite exception to find any pain or tenderness in the renal regions.

Any young adult suffering from pain and frequenc with pyuria might have tuberculous disease of th kidney. Rarely an attack of hæmaturia might h one of the first symptoms. Ordinary clinical examin tion was often negative, but occasionally a deposit tubercle might be found in the epididymis associate with a renal lesion, and in some cases a thickene ureter could be felt per vaginam or per rectum Bacteriological examination of the urine was of th greatest importance. Pus was present whenev there was a lesion of the kidney, but there might h tubercle bacilli in the urine without pus in cases generalised tuberculosis without a definite lesion the kidney. It was now possible to find the tuberc bacillus in the great majority of cases, and where could not be detected animal inoculation migh give a positive result. A marked *B. coli* infectio might mask a tuberculous lesion, especially in wome Cystoscopy was essential for accurate diagnos and often catheterisation of the ureters was require In a few advanced cases the latter might be impossibl It could sometimes be done later, after treatment wit tuberculin, rest, and urinary antiseptics. Shou these fail, said Mr. Renton, the following metho might be tried to show where the lesion was:—

1. Injection of indigo-carmine, either into a muscle into a vein. If the renal disease is advanced the excreti of the blue colour is usually delayed or absent on the affect side. Unfortunately, in early cases the dye is excret just as well by the tuberculous kidney as by the normal or

2. Radiograms may show a shadow where there a caseous masses or calcareous deposits in the kidney.

3. Catheterisation of the ureters after opening the bladd has been suggested, but may be very difficult or ev impossible and should not be attempted.

4. The operative exposure of both kidneys has be employed, but is not to be recommended.

5. Both ureters may be exposed extraperitoneally abo the pelvic brim (Fullerton). The ureter on one side ma be thickened, whilst the other is normal. A catheter ma be inserted through a small incision into one or bo ureters and urine collected, the small opening being afte wards closed.

This last method Mr. Renton considered sati factory in the few cases in which it was impossib to make a reasonably certain diagnosis by less drast methods. He thought pyelography quite unnecessar in the diagnosis of renal tubercle. The addition information it gave did not justify its regular use.

Renal Calculus.

Mr. J. SCOULER BUCHANAN pointed out tha colic and hæmaturia (in macroscopic or microscop amounts) were common to many renal condition When the patients were examined with X rays positive finding might not be obtained, perhap owing to obesity or because the stone did not ca a shadow. Often calcareous glands or phlebolith occupied the renal and ureteric regions and obscure or simulated stone. By cystoscopy, ureteral cathete

isation and pyelography, many cases could be cleared up. Localisation was important because it often saved the kidney from unnecessary trauma. When the kidney was laid open widely in search for stone the patients lost much blood both during and after operation, and urinary fistula sometimes followed. Hydronephrosis, if present, could be demonstrated definitely, even in the early stages, by ureteral catheterisation and pyelography. Moderate degrees of dilatation of the pelvis and calices could not be made out at operation, and the surgeon might thus return the kidney to its bed with a false sense of security as to its future. A pyelogram would give him a pictorial idea of its condition. Stones which the X rays did not show could generally be demonstrated by pyelography.

Mr. Buchanan did not regard the occurrence of colicky pain during injection of sodium iodide into the ureter as of much value from a diagnostic point of view. Once pain was complained of, the injection should be stopped. He ended by saying that he had found the newer methods of great value, and had not known any untoward condition to result from their use.

Tumours and Congenital Abnormalities.

Mr. W. W. GALBRAITH said that the vast majority of renal tumours were malignant and when renal swelling could be palpated the prognosis was grave. On the other hand, many renal tumours gave early indication of their presence by eroding a vessel and causing hæmaturia, generally painless, although sometimes accompanied by colic caused by the blood clotting. Pain in the back was often absent and was often no more than a slight ache. Early investigation of the urinary tract was essential, preferably while blood was still present in the urine. Rest in bed for a day or two would generally cure the bleeding, but its recurrence was almost certain, though it might not take place for many months, when treatment might be too late to cure. In these cases urinary investigation at the very least implied cystoscopy, and the estimation of the relative efficiency of the two kidneys. For this purpose Mr. Galbraith used an intravenous injection of 5 c.cm. of a 4 per cent. solution of indigo-carmine. Though this test was of great value in differentiating the diseased from the normal kidney, it only applied, he thought, where more than one-third of the kidney was destroyed. Thus, in the very early stages of tumour formation, cystoscopy and indigo-carmine would not help towards showing the exact nature of the disease. In such a case—and indeed in every case of actual or suspected renal tumour—he invariably made bilateral pyelograms. In the early stages all that might be seen was some elongation and thinning of the calices. It was almost essential that double pyelography be done as it was only thus that kidneys "normally abnormal" could be excluded. Variations in the normal pelvis were common. Specimens taken from either kidney when the ureters were catheterised before pyelography were of little value, for he had never found tumour cells on microscopic examination of the urine thus obtained, and any blood present might be due to trauma. In cases of hæmaturia to which no cause could be ascribed the patient should be carefully watched and repeatedly examined at intervals of a few months over a prolonged period.

In the congenital anomalies, continued Mr. Galbraith, the indications might be various, and the difficulty was to know when the tests should be applied, but where a patient complained of a swelling, or a vague pain, or indefinite urinary symptoms, and where the swelling or pain lay somewhere in the region of the urinary tract, and where no definite organ could be shown to be the cause, a full examination of the urinary tract might prove invaluable. It was without risk, and practically painless, required no more preparation than that necessary for an X ray photograph, no general anæsthesia, and no abstention from the patient's usual daily routine.

Limitations, Difficulties, and Dangers of Diagnostic Methods.

Mr. J. R. LEARMONTH, drawing attention to the need for strict asepsis, said that in uninfected cases freedom from chills and fever after the examination might be taken as showing the attainment of surgical cleanliness; it was almost certain that they were the result of temporary bacteriæmia, and during the comparable chills which accompanied pyelonephritis blood culture was positive in two-thirds of the cases. In a recent series of 500 pyelographies only seven patients had developed pyrexia above 100° F. Contra-indications to the use of the cystoscope were: (1) when the patient was aged and infirm; (2) when he was greatly weakened; (3) when there was bilateral renal impairment of an extreme degree, as detected by clinical data, studies of the blood chemistry, and renal efficiency tests; and (4) when it was apparent that no surgical procedure could be of any benefit. Under the first three conditions suppression of urine might occur after the examination. In introducing the cystoscope, phimosis, an unusually narrow meatus, or a urethral stricture might require correction. If the last-named must be dilated before the cystoscope can be passed, it was probably better to defer cystoscopy for a few days. Where mere inspection of the bladder could solve the problem, the routine passage of ureteral catheters was to be condemned. The conditions making it justifiable to catheterise the ureters were the presence of pus or blood in the urine—not accounted for by the condition of the bladder and urethra—and the need to determine the individual function of each kidney, to make a pyelogram or to identify a ureteral stone. Infection might be conveyed to a non-infected kidney by passing a ureteral catheter through an infected or tuberculous bladder, and precautions must be taken against this. Previous exhibition of urinary antiseptics helped to reduce the amount of infection; the bladder must be well washed out before the cystoscope was introduced; and in certain types of instrument the ureteral catheter might be passed while continuous irrigation went on through the cystoscope. With these precautions the risk of infecting the kidney was very slight. There might be anatomical difficulty in finding the ureteric orifices and introducing the catheters. Thus the ureters might enter the bladder at abnormal positions; the presence of a cystocele might distort the vesical picture; and in infected bladders, especially when the infection was tuberculous, scarring from cystitis and ureteritis may impede the passage of the catheter or even prevent the identification of ureteric orifice. In this case it might be necessary to expose one or both ureters in the loin. Pyelography should not be attempted (1) when a diagnosis could be reached without it—e.g., in hydronephrosis by obtaining a large amount of residual urine from the kidney pelvis; (2) in the aged, infirm, or emaciated; and (3) in acute infection of the kidney. Though it was usually taught that pyelograms should not be made on both sides at the same time, he had no hesitation in doing so when it seemed desirable, and had observed no ill-effects. The solution employed for pyelography was not in itself dangerous. It was non-irritating, non-toxic, easily sterilised, almost neutral in reaction, and flowed into and out of the pelvis as easily as water. Its only disadvantage was that it is not germicidal; germicidal media had been described, but had not come into general use. Care must be taken not to introduce too much solution. Though the patient was conscious and thus able to complain of the pain to which over-distension gives rise, the catheter might be pushed so far that its eye rested in a calyx, so that pain might be felt after the introduction of enough fluid to distend the calyx alone. This error was easily recognised and rectified by withdrawing the catheter an inch or so. The calibre of the catheter should be such that any excess of fluid could escape down the ureter. Fluid introduced at too high a pressure was apt to find its way into the intrarenal venous system, and this possibility

ruled out pyelography in acute renal infections. After the radiogram was taken the fluid should be removed from the renal pelvis with a syringe before the catheter was withdrawn. Lastly, the interpretation of the pyelogram was often beset with difficulties, and they must always be considered in the light of the clinical data.

LONDON ASSOCIATION OF THE MEDICAL WOMEN'S FEDERATION.

Ultra-Violet Light Therapy in a General Hospital.

AT a meeting of the Federation held on Nov. 27th Dr. JUSTINA WILSON, after paying tribute to Bernhard, Rollier, and Finsen as founders of modern light therapy, claimed that a rational therapy could only be based on knowledge of the physiological and pathological relations of the human organism to light. Ultra-violet light was no indifferent or harmless agent. French authors had recently described profound auto-intoxication as the result of irradiation, and Guillaume and l'Agrifoule had shown that while a strong source of ultra-violet light might increase the resistance of some organs, it undoubtedly decreased the resistance of the hæmopoietic organs. In many cases ultra-violet light acted like protein shock, bringing about a prolonged negative phase. At the present time empiricism had outrun scientific research, and it was necessary to work at this problem, for indiscriminate handling meant failure. The first thing was to realise the inferiority of all sources of light to that of the sun. The second was to understand the quality and quantity of radiation given by the chief types of lamps. Artificial sources of light could be roughly divided into three classes :—

1. Those with chiefly visible rays and some (infra-red) invisible—e.g., all heating apparatus from the match to the electric arc, and all apparatus for radiant heat, hot bottles, &c.
2. Those whose emission produces a single type of (ultra-violet) radiation—i.e., the different forms of mercury vapour and Kromayer lamp.
3. Combined sources such as carbon arcs, arcs with metal (iron, tungsten) electrodes, and carbon arcs with metallic cores.

Ultra-violet therapy was indicated for surgical tuberculosis and rickets. General light baths in tuberculosis of joints, bones, glands, and skin. Tuberculous peritonitis, both serous and dry, reacted well to ultra-violet light, the only exception being when the disease arose from a tuberculous focus in the female adnexa. In fact, all forms of urogenital tuberculosis were refractory to light. Apart from tuberculosis, rickets, wounds, ulcers, burns, ununited fractures, no disease was an absolute indication for light; but it was useful in convalescence, after surgical operations with loss of blood, after infective conditions such as typhoid, and as a prophylactic after illnesses which might lead to tuberculosis, such as influenza, measles, and pleurisy. The effect of light on sleep, appetite, and blood regeneration was marked. Its value in whooping-cough was not yet settled; Huldschinsky had had good results in some 30 cases. The good effects observed in arthritis, fibrositis, neuritis, or sciatica were often due to heat. When the toxic focus underlying these conditions had been removed light was a valuable adjunct because of its physiological invigorating effect.

A rational light therapy was based on the great law of light, which runs: To have effects, light must be absorbed. The basal cells of the epidermis were endowed with specific light sensitivity; light acted directly on these cells, either stimulating and vitalising their functions and secretions, or destroying them. Light also had an indirect effect on the deeper tissues and organs. It was difficult to understand how short non-penetrating rays could affect the body generally, yet a whole series of phenomena proved their powerful effect on protein, carbohydrate, fat, and mineral metabolism; also on the blood picture and on muscle and nerve. The chief theories put forward to explain this were Schläffer's energy theory, and Rollier's theory of transformation. The simplest and most rational explanation was due to Jesionek, who believed that absorbed light stimulated certain vital cell products which reached the tuberculous focus via the blood and lymph stream.

Three phenomena expressed the effect of light on the human skin: (1) hyperæmia, (2) erythema, (3) pigmentation. The first was an immediate effect primarily due to heat rays dilating the capillaries and lymphatics, and giving rise to increased elimination of toxic products and increased phagocytosis. Erythema was a late response of the skin to the chemical rays. Direct light therapy might be used to stimulate the normal functions of the basal cells—e.g., the germinative function in the treatment of non-healing wounds, skin grafts, indolent ulcers, burns, and non-uniting fractures. Light could also be used to stimulate and regulate the keratin-forming power of the basal cells, in any condition where this was abnormal, such as eczema, psoriasis, acne, or alopecia. In acute eczema good results could be achieved by using the cold light of the mercury vapour lamp, and avoiding flooding the capillaries by infra-red rays. Strong doses were necessary, and the use of a sensitiser (such as salt and water) was an advantage. In psoriasis plaques should be first removed by using white precipitate ointment overnight, 10 per cent. salicylic ointment in the morning followed by a soap bath, then a general light bath, and finally intense and direct treatment to the worst parts. In acne vulgaris, where there was always disturbance of the keratotic function of the cells, a combined source of light was often better than the mercury-vapour and the Kromayer lamp when much induration was present. The greatest triumph of ultra-violet light was in the treatment of lupus by photo-chemical inflammation. Jesionek's technique aimed at the production of periods of acute inflammation by mercury vapour, alternating with colloboric compresses, general light baths being given in addition.

In gynæcology, light was an indispensable adjunct to conservative treatment of subacute and chronic inflammatory conditions of adnexa, vulva, and vagina. In amenorrhœa arising from infantile conditions good results were gained by a system of cross-fire radiation to the ovary from within and without. Contraindications were acute inflammatory conditions and the menstrual period, as in both of these the bactericidal power of the blood was reduced.

ROYAL PHYSICAL SOCIETY OF EDINBURGH

AT a meeting of this Society on Nov. 21st Dr. DOUGLAS GUTHRIE read a paper on

Pharyngeal and Laryngeal Pouches in Man and Animals.

He said that pockets, or *ganahs* as they are called, were sometimes artificially produced by criminals in India by means of a lead weight attached to a string. The leaden disc was retained in position continuously and served to deepen the normal hollow (sinus pyriformis) at the entrance of the larynx, and the pouch which was thus gradually formed became a safe hiding place for coins or precious stones. The pouch differed in site and origin from the pharyngeal diverticulum which occasionally developed behind the larynx. This was of the nature of a hernia and sometimes demanded surgical attention. It was interesting to note that in the pig a pouch was normally present at this point in the posterior pharyngeal wall, but no such structure existed in other domestic animals. Other pouches such as were found within the larynx were of interest to the comparative anatomist. In man, there was a depression, the laryngeal ventricle, just above each vocal cord, and from this a little pouch or saccule extended upwards for a variable distance. In the gorilla and chimpanzee this extension, uniting with its neighbour

of the opposite side, reached as far as the root of the neck; in other monkeys the two united saccules occupied a large cavity in the hyoid bone. Absent in the sheep and ox, the ventricle and saccule were found in the dog and pig, whilst in the horse the saccular part was relatively large. Advantage was taken of this fact in the operation of ventricle-stripping to cure "roaring" in horses. Dr. Guthrie demonstrated the shape and contour of the saccule in various species by means of a series of casts. The function of laryngeal pouches was, he said, uncertain. They might serve to lubricate the vocal cords or might act as resonating chambers, or they might simply be the degenerate remains of the accessory air reservoirs seen in the frog and in birds.

THE PROBLEM OF GOITRE.

INTERNATIONAL CONFERENCE HELD IN BERNE, AUGUST 24TH–27TH, 1927.

Report by Dr. F. DE QUERVAIN,
PROFESSOR OF SURGERY IN THE UNIVERSITY OF BERNE; HON. FELLOW OF THE ROYAL SOCIETY OF MEDICINE.

THE first suggestion of an international conference on goitre came from Prof. Aschoff (Freiburg) who proposed a meeting of scientific workers to study the behaviour of goitre throughout the watershed of the Rhine. The idea was handed on to the Swiss Goitre Commission by the late Prof. Hotz (Basle), but the Commission determined to widen the inquiry to include all countries and continents, and to limit the first conference to the purely scientific problems of pathological anatomy and physiology, and endemiology and ætiology, leaving clinical questions for discussion later. At a later stage was added a section of prophylaxis, to form, as it were, a transition to the practical questions. Preparations were made to hold the conference in 1923, but the political situation of Europe made postponement desirable, the delay having the advantage of bringing in all countries interested in goitre. Only from the United States of America was the representation less complete than had been hoped. The decision not to throw open the conference to general discussion, but to invite a limited number of scientific workers of all shades of view to speak on important problems, justified itself in practice and may serve as a model for similar large congresses in future.

Pathological Anatomy.

In this subject international discussion was especially necessary since mutual understanding of scientific work is made increasingly difficult by differences in nomenclature. The preliminary papers of ASCHOFF, WEGELIN, and MARINE, and the remarks made in the discussion by ROUSSY, JOSSELIN DE JONGH, and others helped notably to clear the situation, with the help of an exhibition of naked-eye and microscopic preparations from most European countries. While unity prevailed over goitre of the new-born and adolescent, and over colloid goitre, the nature of nodular parenchymatous goitre gave rise to a lively discussion. Wölfler's conception of its origin from fetal remains hardly gained any support and should be regarded as finally wiped off the slate. On the other hand, no complete agreement could be reached whether goitre nodules are to be regarded as "parenchymatous overgrowths" or as "adenomata." The former interpretation was supported from the French side, the latter from the German and Swiss side. Fundamentally this is not a thyroid problem, but rather one of general pathology—namely, to determine the boundary between limited hyperplasia and new growth. It was therefore not to be expected that the question would be cleared up by taking the thyroid as an example. The determination was reached to set up an international nomenclature, using as its basis in essentials the so-called Berne scheme. A small commission of pathological anatomists was entrusted with this task.

Of special interest for the estimation of thyroid enlargement were the series of preparations set up by the pathological institutes of Freiburg (Aschoff) and Würzburg (B. Schmidt) dealing with the development of the thyroid at various periods of life, and in goitrous and non-goitrous regions. The life-curve of the thyroid, especially brought out by Aschoff, will contribute materially to a clear limitation between normal and morbid processes. If a survey is taken of material derived from various parts of Europe the conviction is soon reached that endemic goitre is fundamentally the same everywhere, and that local differences, apart from the absolute frequency of goitre, are due to relative frequency of the separate forms. In the centre of a region where goitre is endemic, the nodular parenchymatous form prevails; at the periphery colloid goitre, diffuse at first, becoming nodular in later life; in the goitrous parts of the lowland separated from the great endemic centres diffuse colloid goitre only exceptionally becoming nodular.

The most severe form of goitrous thyroid change—namely, the cretin goitre—was discussed principally by WEGELIN. The cretin's thyroid is either atrophic with little adenomatous nodules, or there lie in an atrophic matrix nodules of some size, as a rule of a parenchymatous character, in which all forms of secondary changes may occur—calcification, cyst-formation, &c. In the cretin goitre colloid is only occasionally formed. The whole cycle of goitrous development with its various sequels was set out most clearly in the paper of Marine, who unfortunately was prevented from being present himself.

The discussion on struma maligna was opened by WEGELIN, whose recent book on the pathology of the thyroid is likely to remain for some time as the standard work. The type described by Langhans as "sprouting struma" is attracting more and more the attention it deserves. The only point on which agreement was not reached is the significance of the so-called hæmangi-endothelioma of the thyroid. That this is a special kind of tumour is put beyond a doubt by the Berne material, but its actual nature remains in dispute. Whereas Wegelin, in agreement with Hedinger, regards the tumour cells as endothelial, Roussy considers them epithelial. Cysts and hæmorrhages characterise the majority of these growths.

The conference next turned to consider the anatomical and physiological studies of WILLIAMSON and PEARSE, who draw a sharp distinction between secretion tissue and colloid storage tissue. Should the results of these two investigators be confirmed they certainly mark the greatest advance of recent years in our knowledge of this subject and will be of very real value in the interpretation of the histological picture. Their microscopical preparations were, on this account, of special interest to the members of the conference.

Pathological Physiology of Endemic Goitre.

To the great regret of the conference, PLUMMER (Rochester, U.S.A.), who was to have introduced the subject, was prevented from coming himself and could not send his introductory paper in time. In his place DE QUERVAIN introduced the discussion. He began by laying emphasis on the fact that the pathological physiology of endemic goitre is not covered entirely by the problem of thyroid physiology and its disturbances. The morbid process which leads to goitre may influence the organism in other ways, first, via damage to the parental organism; and, secondly, by direct action on the body tissues, as also on the other endocrine glands. But damage to the thyroid itself occupies the foreground, and is in much greater degree accessible to anatomical, clinical, and experimental study than the other possibilities mentioned. From the practical standpoint, therefore, the physiology of endemic goitre must concern itself in the first place with the problem of the thyroid gland. After this preface de Quervain spoke of the influence of endemic

goitre on the thyroid function, showing how, in the majority of cases, the function is disturbed in a manner not as yet accessible to demonstration. In a small number of cases a secondary Basedow-effect is found, not only in diffuse, but also in nodular endemic goitre. This Basedow struma is geographically, and in part also genetically, to be distinguished from genuine Basedow,[1] even if a schematic clinical distinction is not possible. Frequently the Basedow-effect is released by a dose of iodine as small as 0·5 mg. daily. Much more often, however, the goitrous noxa leads to a diminution of thyroid function, whose clinical expression is seen in the picture of endemic cretinism. We must therefore distinguish between the cretin with atrophic thyroid and the classical symptoms of thyroid insufficiency on the one hand, and the goitrous cretin on the other hand, in whom the clinical picture, owing to later and less severe change in the gland, is a less complete one. In order to explain what are essentially plus-thyroid conditions as well as the minus-thyroid condition of the cretin, de Quervain assumes the possibility of a dysthyroid component. This may consist either in an abnormal blend of the various components of the secretion, or in the production of entirely unphysiological secretions. The former assumption is rendered very probable by present-day research. For the second assumption no absolute proof for or against has yet been brought forward. The significance of the striking dissociation in the picture of cretinism would be most easily explained by the assumption of a dysfunction. It is, however, possible that the goitrous noxa acts also on the body via the parental organism (heredity), and finally it may directly damage the tissues of the goitrous person, including the other endocrine glands, as has been taught by Virchow, Scholz, Ewald, and Bircher. Dealing with the circulation of iodine between the blood and thyroid de Quervain showed, on the basis of his own work and that of Sturm and Veil, that the iodine level in the blood possesses great constancy, and that its height depends on the functional activity of the thyroid gland. It is at its highest in Basedow, at its lowest—only about half or so of the normal height—in the cretin. If the latter is given iodine in excess it is rapidly excreted, since his thyroid gland is not in a position to synthesise it in the normal way. On the other hand, the iodine in the thyroid is partly brought into another chemical combination, whether it is stored up as colloid or whether in this new combination it leaves the thyroid at once without being stored.

The second paper was read for Prof. VON EISELSBERG by his assistant, Prof. BREITNER, who attempted on the basis of his earlier and recent work to explain the various functional conditions of the thyroid by the demands placed on it by the body. He distinguishes between hyporhœic and hyperrhœic conditions, denotes the different behaviour of the histological picture as eutrophic, hypertrophic, and hypotrophic. By combination of these possibilities he derives the various forms of goitre as they actually occur in practice. His classification is therefore, in contrast to that of Wegelin, Aschoff, Bérard, McCarrison, and Williamson, a combination of anatomical and functional. It approaches, on the other hand, the classification of Williamson in that it depends on a subjective estimation of the trophic condition of the gland. In opposition to his view the majority of those present emphasised the necessity of a purely descriptive classification for international use, independent of any theoretical conception. This does not prevent Breitner's view as well as that of Williamson from being of interest as working hypotheses. The action of iodine is construed by Breitner as corresponding to a "functional direction" of the gland—that is to say, in the hyperrhœic gland it gives rise to colloid storage, and in glands already overflowing with colloid it releases the secretion.

[1] *Basedow* is here used in the continental sense of exophthalmic goitre; the convenient compounds *Basedowizierung* and *basedowificata* have been paraphrased with difficulty.

Ætiology and Epidemiology.

Prof. LÉON BÉRARD'S (Lyon) clear and succinct introductory paper started with French experience but touched the problem in its whole extent. Bérard takes the standpoint of multiplicity of ætiological factors and hazards the suggestion that the totality of the factors causing goitre disturbs iodine metabolism in the body—that is to say, produces iodine deficiency. Drinking-water plays the chief rôle as carrier of the yet unknown noxa. Age, sex, and heredity play a secondary but not unimportant rôle. Bérard's paper was supplemented by a valuable contribution from McCARRISON which in his regretted absence was summarised by Sir JAMES BERRY. In the same way as the latter laid emphasis a quarter of a century ago so McCarrison still insists that goitre is a syndrome which includes a great number of conditions of various origin. The proof of this he gave in a paper summarising his important and fruitful life-work. For endemic goitre in the narrow sense—goitre of the Alps and the Himalaya, as McCarrison puts it—he finds the pathogenetic explanation in a reasoned combination of iodine deficiency theory and infection theory. The latter is warmly supported by Galli-Valerio, who is only an adherent of the iodine deficiency theory to the extent that iodine is able to neutralise the noxa causing goitre where the latter is not acting too intensively. Iodine is the antidote whose employment should not prevent an interest being taken in all the essentials of general hygiene.

E. BIRCHER makes distinction between the endemic goitre of the Alps and mountainous regions of Asia and the goitre of the European and American plain. On the other hand, he finds it necessary to bring in cretinism, cretinoid deafness, and endemic goitrous heart into the conception of the endemic goitre epidemic. In order to judge of the effect of prophylactic measures the variable character of the endemic and the shifting of its maxima must be borne in mind.

Discussion of the ætiology of goitre gave the impression of fairly general agreement on the assumption of a toxic cause which in a way still unknown is rendered more or less harmless by the physiologic intake of iodine with the food. Goitre arises in general where either iodine deficiency exists or where the noxa works too intensively to be neutralised by the quantity of iodine normally present in the body.

On the question whether water or other food is the chief vehicle of the goitrous noxa, and on the method of action of iodine, various views are taken within the limit of this theory. Almost unanimous was the refusal of a specific goitrous infection. As this point two views were brought forward which cannot remain unmentioned, although they met with not a little scepticism. CROTTI (Columbus, Ohio) found in the blood of goitre-bearers spirilla and protozoa of various kinds, a whole flora or fauna which he thinks he can show also in the water of goitrous neighbourhoods. Dr. FOLLEY (Paris) related similar independent findings and demonstrated them after the conference in a case placed at his disposal in the surgical clinic. These findings must be tested, for in medicine the unlikeliest sometimes turns out to be true.

Prophylaxis.

The three introductory papers by WAGNER JAUREGG (Vienna), MUGGIA (Sondrio), and SILBERSCHMIDT (Zürich) all recommended on the ground of existing experience general prophylaxis by means of iodised salt in physiological dose (5 mg. KI to 1 kg. salt). The carrying out of this prophylaxis in Austria during three and a half years has been accompanied by a perceptible retrogression in school goitre and the drawbacks of the proceeding (iodine-Basedow) are, according to Swiss statistics, not of a kind to prohibit its employment. The severest symptoms attributed to iodised salt come from North America where an altogether unphysiological dose—namely, 0·2 g. KI per kg. salt, has been added; that is to say, a dose which at the time of the first experiments of the kind in France 70 years ago had already led to iodism

Basedow. Moreover, the addition should in the general opinion be optional; the possibility should be offered of obtaining also iodine-free salt. For certain neighbourhoods Muggia regards the so-called "dumb" iodine prophylaxis to be indicated. Certainly it is argued by individual authors that any iodine prophylaxis must be carried out individually, but if this were done the chief aim of prophylaxis—its general influence of childhood in the fœtal period—would be lost. Only an influence exerted on the whole population exposed to goitre can lead to a result. Further, the argument that there are goitres in which iodine gives no result cannot be seriously maintained, for they are either the end-results of the usual endemic goitre (cysts and other degenerative forms), whose occurrence could have been prevented by timely iodine prophylaxis, or they are forms of goitre, like those described as lymphadenoid goitre by Williamson, Pearse, and McCarrison, which play practically no rôle in the goitrous areas of the Alps. For where these latter occur or predominate the observations made by McCarrison in regard to the kind of food-supply would have to be considered.

Alongside the general influencing of the goitrous endemic by physiological iodine SILBERSCHMIDT specially emphasises the value of an individual treatment of school goitre with iodine by means of small doses (1 to 3 mg.), such as has been carried out specially in Switzerland, but also in Austria, and to which, given medical supervision, no drawback has been observed. The results of this school prophylaxis, or more correctly school treatment, were illustrated by wall diagrams from various countries.

The fear that physiological iodine addition to salt or cattle might cause a reduction in the production of milk or in the reproductive power has been set aside by experiments carried out by Dr. Stiner at the instance of the Swiss Health Office. In these the influence of iodine salt was found to be favourable in both directions. Interesting in this connexion are the observations of Nicolaysen and Lunde (Norway), according to which the feeding of fish with an iodine-containing fodder hinders the formation of goitre.

Towards the prevention of iodine-Basedow much would be gained if the administration of iodine preparations to patients, apart from doctors' prescriptions, could be entirely forbidden.

The aims of goitre prophylaxis, as brought out in the discussion, may be shortly summarised as follows. For man and cattle to supply the necessary physiological ration of iodine. For the already marked school goitre to combat this by individual iodine treatment in medical hands. To ensure a normal composition of food-supply containing vitamins. Finally, to combat the misuse of iodine in unphysiological doses, specially in the adult. Should a more general application of these principles result, the conference will have done something not only for the scientific recognition of endemic goitre, but also for its abolition.

A Retrospect.

This concluding sentence recalls a historical incident. One of the first, if not the first, scientific and partly international conference on endemic goitre and its causes took place in Lyons in the year 1841. Discussion turned there as at present on the influence of drinking-water, height above sea-level, climate, and biological conditions. It was then, as now, set out that, for example, in Valais, Switzerland, the number of goitrous persons had diminished since sanitary orders had been enacted. At the conclusion a letter was read from Dr. Prévost (Geneva) which ascribed goitre to the absence of bromine or iodine in drinking-water. This idea of Prévost was followed up ten years later in Paris by the chemist Chatin, whose observations were confirmed in essential points by Dr. von Fellenberg, chemist of the Swiss Health Office, and by MacClendon. The whole prophylaxis discussion of this year's goitre conference has its roots in the short communication of Prévost to the conference of 1841.

Any members of the conference who desired at its conclusion to have practical demonstration of goitre and cretinism were bidden by DE QUERVAIN to the surgical clinic and to one of the institutions of the Canton of Berne in which more than 100 cretins are cared for and put to useful work corresponding to their abilities. By the side of cases of pure athyreosis, having no connexion with cretinism, he demonstrated on the film and in person cretins of all types with and without goitre, and the visitor could form his own picture of the damage to which the goitrous endemic leads in its worst grades and draw his own conclusion as to the necessity for a general campaign.

He could also convince himself of the validity of the remark made by Maffey and Rösch in 1844: "that the belief in a 'normal' cretin or in a cretin prototype can only hinder the approach to truth and that only abundant experience and long-continued observation will allow us to recognise the pathognomonic signs and to distinguish them from accidental symptoms."

Reviews and Notices of Books.

THE MEDICAL DEPARTMENT OF THE UNITED STATES ARMY IN THE WORLD WAR.

Vol. VI., Sanitation. Washington: Government Printing Office. 1926. Pp. 1141. $3.25.

Vol. XI., Surgery. Part I. 1927. Pp. 1324. $4.

THESE two books form part of a series issued by the War Department of the U.S. Federal Government. Vol. VI. is devoted to sanitation, and its detail is overwhelming; for example, 44 pages are devoted to an account of how the army hut developed, and how the space allotted to each man increased from 27 square and 291 cubic feet to 53 square and 528 cubic feet, with 5 feet between the men's heads as they slept. There is need, in fact, of an index-handbook to announce briefly what the sanitarians decided, giving references to the volume and page where their preliminary investigations are recorded.

The cause of hygiene in the American army during the war was helped by the prestige that had been gained in peace-time, at Panama and elsewhere, by Surgeon-General W. C. Gorgas. With three other physicians, he was early put on a housing board, most of whose recommendations were at once accepted; one of them, however, seems to have been completely overlooked—namely, "that the outer walls [of the huts] be so constructed that sections may be raised, so as practically to convert the dormitories into outdoor sleeping porches." How useful this provision would have been found in the influenza pandemic may be guessed from the fact that at East Boston, Massachusetts, the open-air treatment of influenzal pneumonia reduced mortality by 50–70 per cent.[1] Amongst American troops the influenza epidemic was first noted on Sept. 7th, 1918, in three transports (from whence unstated) five days before reaching Archangel. On the following day it broke out at Camp Devens, Massachusetts, planned for 30,000 men, but now overcrowded with 45,000; here 10,000 cases were reported within three weeks. The peaks of the epidemics occurred among the United States troops in France in the third week of September, in the transports going to France about Oct. 11th, in the French army in the third week of October, and in the British Expeditionary Force in the first week of November.

There are many fascinating essays in this volume, on subjects including baking as influenced by the pH of the water, the addition of serum to the dough, the choice of camp sites, and antimalarial work, whose cost varied between £20 and £700 per square mile. "Shoes" (anglice, boots) were very carefully chosen for the army before the war, but were found too light

[1] Ministry of Health's Report on the Pandemic of Influenza, 1920, p. 265.

for the trenches; the British pattern lasted six months instead of four, and "several millions" were therefore ordered, but, being made on European lasts, did not fit United States soldiers, and are said to have given the 42nd Division sore feet on their march into Germany. There are very valuable notes on feeding troops in transports, and on the importance of the "food and nutrition" officer, who does nothing else but examine the messing of units, trying to improve it.

Much trouble was taken to lessen or prevent venereal disease in France. There were lectures and other diversions, and the High Command did its best to prevent infectious contacts and, alternatively, to secure prompt prophylactic treatment. Congress had early ordered the suppression of prostitution in the neighbourhood of camps in the U.S.A., but in France all that could be done was to put brothels out of bounds. The French became alarmed; they had hoped that venereal disease would have been confined to the brothels, and were now anxious lest it should become generally disseminated. They alleged that rape increased; this proved to be an error. Clandestine prostitutes, when found, were banished from about United States camps, and to associate with them in Paris was a military offence. Prophylactic treatment had been adopted by the United States army in 1912. It was ordered on July 2nd, 1917, that every man exposing himself to the risk of venereal disease should take prophylactic measures; if he did not do so, and became diseased, he was to be court-martialled for incapacitating himself by neglect. Further, it was ordered on Dec. 18th of the same year that every man returning from leave must, if sober, sign a certificate that he had not risked contracting venereal disease, or else must adopt prophylaxis, which would be administered to him if he was drunk. This order also declared that a high venereal rate in a unit was evidence that its discipline was bad, and was therefore a slur on its commander, casting doubt on his fitness for promotion. It also limited leave passes to four hours, not later than 9.30 P.M. Prophylaxis had fewer failures after four hours' leave than when all-night passes were issued. Much depended on how prophylaxis was done. Each station was in charge of an orderly who was supposed to administer the treatment. But when inquiry was made into 142 failures in one division it appeared that 102 of the men had done the disinfection themselves, that 60 had been given no soap, and 10 no ointment. When prophylaxis was supervised for six months by a zealous medical officer in a large camp of some 2000 men it was found that the only men infected were those who had neglected precautions. After the Armistice men were given a week's leave at Government expense at Aix, Biarritz, or other selected centres. They were inspected before they left their units, a doctor and orderlies with prophylactic equipment travelled with them on the leave-train, and they were again inspected on arrival, being warned of the risks of that place, and told what areas were out of bounds and the positions of the prophylactic stations, which were multiplied if necessary. In the first half of 1919, 415,755 men went thus on leave, 50 per cent. took preventive measures, and 323 cases of venereal disease occurred (0·25 per cent. of those who risked infection, and 0·08 per cent. of the whole). The success in the army generally was much less, for between September, 1918, and June, 1919, the number of cases was equivalent to an annual rate of 4 per cent.—i.e., no lower than that of the British army. The Commander-in-Chief was dissatisfied, made a personal inspection, and noted that brothels were not everywhere put out of bounds, and that prophylactic stations were not always easily accessible or well kept. All this goes to show how difficult it is to prevent these diseases, even when the aim is energetically pursued.

Vol. XI. is devoted to surgery. Its first part, here reviewed, treats of general surgery, orthopædic surgery, and neurosurgery, and is apparently produced regardless of expense, being fully illustrated, partly in colour. In the section on general surgery all the means employed by the combatants on the Western front for the purpose of destroying or disabling one another are first described—sometimes, we think, unnecessarily. For instance, a picture of a United States 14-inch coast defence railway gun has little bearing on the study of wounds in the world war, even though it was "evolved entirely by the United States Ordnance Department." Profusion of illustrations is, however, a fault on the right side, though it may swell the size and increase the weight of the book. Statistics, anæsthesia, wound shock, and localisation and extraction of foreign bodies under X ray control are discussed at length, and there are chapters on gas gangrene, tetanus, and trench foot. Wounds are classified and discussed in chapters devoted to various regions by divers authors. The chapter on the end-results of fractures of long bones seems to us to belong more properly to the orthopædic section, which occupies 200 pages of this volume.

The successful organisation of the division of orthopædic surgery was largely due to the foresight of the members of the American Orthopædic Association, at the annual meeting in Washington in May 1916, when a resolution was passed that there should be appointed a preparedness committee "to consider the needs and equipment of orthopædic hospitals should such be required." In July, 1917, the suggestions made by the association were accepted by the Surgeon-General. The work of the division was divided into two parts—namely, the preparation of recruits from an orthopædic standpoint, and the prevention and treatment of deformities and disabilities caused by enemy action. The first part dealt with flat-foot and other static disabilities, such as faulty posture which seem to have caused far more trouble among recruits and trained men than was observed in the British army. A number of American orthopædic surgeons were lent in the spring of 1917, at the request of Sir Robert Jones, to help in the military orthopædic hospitals in Great Britain. These officers rendered invaluable help, and at the same time acquired a knowledge of the special circumstances and ways of dealing with them, which was afterwards very useful to the American Expeditionary Forces. Another smaller group of American orthopædic surgeons went overseas with the first American base hospital unit which had been organised in the United States. Profiting largely by British experience splints were standardised, and ultimately the number of types was reduced to ten. A manual of splints and appliances was issued and revised when necessary. Various forms of the Thomas splint and the Balkan frame were largely used with good results. These are all well represented in the illustrations to this section. In the treatment in France a method of "radial control" was established whereby the fracture of a joint case remained under special care all the way from the casualty clearing station to the hospital ship which carried the patient back to the United States. Until such a method was established it was found that many fractured limbs reached home with badly fitting splints and malunited bones.

In December, 1917, a special training battalion camp was established in France for the training of men physically unfit for marching and combatant duty—men in whom physical defects had developed or had been accentuated since entering the army. There were malingerers among them, but in the opinion of the anonymous writer of the chapter a large number were men of insufficient muscular development. The account of this work of restoration is of great interest, but it is too large a subject to be successfully epitomised here. A large number of the men were not returned to the firing line, but rendered fit enough to do work as hospital orderlies, motor drivers, and the like. Great attention was paid in the orthopædic division to the care of the soldiers' feet and to the modification, when necessary, of his boots. Recruits with insufficient muscular

strength apparently constituted, everything considered, the most troublesome group.

Two chapters are devoted to fractures of the upper and lower extremities, and illustrated by many clear X ray prints. The treatment adopted did not differ essentially from that used in British hospitals, but the Americans seem to have used the Hodgen splint more freely. Chapter V. gives a most interesting and valuable account of the treatment of non-union in atrophic long bones and in chronic suppurative osteitis by autogenous bone-grafts. Most of these were taken from the healthy tibia with the Albee saw. The crest of this bone was first used, but afterwards its inner surface was preferred, because regeneration of bone was better there. The inlay type of graft was used in the tibia, and usually on the forearm. For the humerus and femur the intramedullary, or as it is here called, the intermedullary, graft was found to answer best, owing to the lack of substance to hold an inlay. In some cases one end of the graft was intramedullary, and the other inlaid on to the condyles and supracondylar region. A study of this chapter with its case-reports and X ray pictures and detailed accounts of procedure will well repay any surgeon who is about to undertake an operation for non-union of a fracture. The two chapters on the amputation service and care of the amputated in the United States are full and well illustrated. American experience and practice seems to agree with our own, but much more elaborate types of provisional artificial limbs were supplied in the United States than in Great Britain. Nearly all the types of legs shown in these illustrations had artificial feet instead of the peg or block usual in our temporary prostheses. The supply of permanent prostheses seems not to come within the province of the medical department.

The section on neurosurgery begins with a chapter on organisation. The number of available surgeons with special experience of head injuries was small, and it became necessary to instruct a number of officers for duty in this subservice. In addition to such instruction, the senior consultant in neurological surgery, American Expeditionary Force, issued full directions to neurosurgical teams, which are here reprinted and which were of the highest value. The advisability of early treatment is shown by the facts here quoted, from which it appears that in the autumn of 1917, in a series of 200 cases operated upon in a British casualty clearing station which was given over entirely to wounds of the head, the mortality was 28·5 per cent., while a similar series operated upon by members of the same team in a base hospital had a mortality of about 45 per cent. The spinal cases did very badly throughout, as was anticipated. The remaining 12 chapters deal with various aspects of neurological work, including five on peripheral nerve injuries and their treatment. The results of 470 operations on such cases, whether in the nature of neurolysis or of suture, yielded 34 per cent. of "good," and 36 per cent. "mediocre" results, and 26 per cent. "failures." As is pointed out, the estimation of good and mediocre results rests on no accurate basis, and is largely influenced by the personality of the observer. The writer of this article says of nerve transplantations: "The employment of the transplant, either 'auto' or 'homo,' as a practical method of bridging defects in peripheral nerves has proven a dismal failure in the hands of surgeons of our country." A report of a number of interesting experiments on animals, made to investigate the formation of neuromata in severed nerves, concludes with the statement that absolute alcohol injected into the nerve 2–2·5 cm. from its cut surface in several small injections arranged so as to involve all parts of the nerve trunk, is a procedure which is successful in preventing neuroma formation, thus vindicating the method of those surgeons who have adopted such a procedure as a routine in re-amputation or the treatment of painful bulbous nerves in stumps. The section concludes with a full report of experimental observations on nerve-transplants.

PSYCHE MINIATURES.

By Various Authors. London: Kegan Paul, Trench, Trübner and Co., Ltd. 1927. 2*s.* 6*d.* each.

Diagnosis and Spiritual Healing. By F. G. CROOKSHANK, M.D. Lond., F.R.C.P. Pp. 101.

Rheumatic Diseases. By MATTHEW BURROW RAY, D.S.O., M.D. Pp. 91.

Dermatological Neuroses. By W. J. O'DONOVAN, O.B.E., M.D., M.R.C.P. Pp. 99.

Idiosyncrasies. By Sir HUMPHRY ROLLESTON, Bart., K.C.B., F.R.C.P. Pp. 119.

On History. By A. L. ROWSE, Fellow of All Souls College, Oxford. Pp. 103.

Emergent Evolution. By WILLIAM MORTON WHEELER, Ph.D., Professor of Entomology at Harvard University. Pp. 57.

Man a Machine. By JOSEPH NEEDHAM, Fellow of Gonville and Caius College, Cambridge. Pp. 111.

THESE little books belong to a series which is divided into two categories, medical and general. The general section covers a great deal of ground upon which modern medicine has made definite encroachments, while on reading the names of the various authors contributing to the medical section we can estimate that the instruction provided will be well informed and sound. Sir Humphry Rolleston gives an extraordinary number of examples of individual reactions which differ from those ordinarily observed, whether to outside stimuli or to drugs, and the little book is rendered additionally useful by the copiousness of its careful references. Many of these idiosyncrasies being dermatological, this volume may well be read in association with Dr. Donovan's contribution to the series. Dr. Ray's concluding words give the clue to his interesting book, which may be described fairly as notes to accompany the classification of rheumatic diseases made by the Ministry of Health in the report (No. 23, 1924) upon their incidence. "Since psychic states," he says, "acting through the endocrine system, have an important bearing on metabolism, a careful and more extended study of these reactions will greatly help us to a more thorough understanding of rheumatic diseases." This teaching accords well with that of Dr. Crookshank, who reprints here the Bradshaw lecture, given before the Royal College of Physicians of London last year, upon the theory of diagnosis (*vide* THE LANCET, Nov. 6th, p. 939, and Nov. 13th, p. 995), and a paper on the connexions between medical theory and spiritual healing read before the Hunterian Society at an earlier date.

The last three books on the list belong to the general section and in each the interweaving of medicine with general science is closely displayed, but in none more than in Mr. Needham's essay. This is a reasoned contradiction, from the point of view of exact biology, of those who do not recognise adequately the methodical importance of mechanism in science; and we can see its arguments being fully employed, either with endorsement or with reprobation, by future disputants. It can well be read in association with Mr. Rowse's study of the present tendencies of history, a reproduction of a contribution to the proceedings at Christchurch of the Essay Club, in which the difference between fatalism and historical determinism is discussed. He closes with a depressing estimate of human progress based on the surmise that "a healthy Neanderthal or Cromagnon man, who might as easily dispose of a modern athlete as any gorilla, could be held excused if he thought his bald and almost jawless successor to be in the highest degree degenerate."

A series of small volumes that point the way to large thinking.

INTERNATIONAL HYGIENE.

By C. W. HUTT, M.A., M.D., D.P.H., Medical Officer of Health, Metropolitan Borough of Holborn. London: Methuen and Co., Ltd. 1927. Pp. 261. 10*s.* 6*d.*

THE habit of "thinking internationally" is growing steadily amongst intelligent men and women, and there was scope for such a book as Dr. Hutt has written. It is obvious that for an island country the health of the mercantile marine, both its own and that of other countries, is of great importance to trade, while the fact that England is on the path of migration from the mainland of Europe to the Far West means that this country is liable to infections imported from all quarters of the globe. Dr. Hutt deals in interesting detail with these and other aspects of the problems of international hygiene. He begins with one of the fundamental problems—namely, how infectious diseases are kept out of a maritime country—and goes on to discuss land frontiers in relation to infectious diseases and the various sanitary conventions. Our dependence upon the Dominions and continental neighbours for our food-supply leads to a discussion of the international problems connected with food. The chapter on the difficult subject of drug habits opens up a new field of preventive medicine, and Dr. Hutt's summary of the working of the Dangerous Drugs Acts of 1920 and 1923 is admirably balanced. Following chapters deal with the health of the seamen, and in particular the problem of venereal disease. Writing of industrial hygiene from the international standpoint, Dr. Hutt stresses the point that any restriction in industry which makes for the health of the workers should be imposed equally on all nations; the existence of an International Labour Office and of the League of Nations Health Organisation, whose work is well set out in this book, may make this a practical ideal. Voluntary work such as that of the League of Red Cross Societies is also playing a valuable part in the international field. Interchange of public health personnel, made possible by the generosity of the Rockefeller Foundation, may prove the best means of all for pooling hygienic experience, and it was presumably Dr. Hutt's visit to Austria in such circumstances that stimulated him to write this admirable book.

JOURNALS.

BRITISH JOURNAL OF OPHTHALMOLOGY.

September.—This number is mainly devoted to hereditary and family diseases. C. H. Usher gives two pedigrees of hereditary optic atrophy. R. R. James a pedigree of a family showing hereditary glaucoma. R. C. Davenport a family history of choroidal sarcoma. Major J. N. Duggan and B. P. Nanavati have discovered a family with blue sclerotics, and the same authors a family with aniridia. The juxtaposition of these various narratives is calculated to enhance their value.

October.—N. Pines contributes a paper on arterial hypertension and retinal changes. The general practitioner is sometimes appealed to by specialists to record observations of this nature and we cannot but be grateful when the appeal, as in this case, is responded to. In over a hundred cases seen in general practice the blood pressure (systolic and diastolic) was correlated with the state of the retinal vessels as revealed by the ophthalmoscope, the urine being also examined in most cases. For this work considerable experience with the ophthalmoscope is required, and this the author possesses. His analytical table, in which the various signs of degeneration of the vessels are correlated with different degrees of hyperpiesis and with cases of diabetes, is of distinct value. The different vascular signs usually looked for are tabulated and the frequency with which they were found is noted, but the main importance is attached to the sign of translucency of the secondary arteries. (In the main arterial branches the blood column is so thick that it is itself sufficient to cause loss of translucency.) When translucency was complete the blood pressure was normal in all cases. When translucency was incomplete or absent the general blood pressure was in all cases abnormally high. This is a valuable observation, but needs checking by other observers, especially in regard to the age of the patients. In elderly patients a certain loss of translucency is the rule without the existence of any unduly high arterial tension.

November.—In the second of two short papers T. Harrison Butler reports a case of monocular diplopia which must be unique. The slit lamp showed the cause of the diplopia to be a large fluid cleft in the cortex of the lens. This formed an optical opacity dividing the lens into an upper and a lower segment. These acted independently, forming an upper and a lower image upon the retina.—Tscherning's Photometrical Glasses form the subject of a paper by W. A. Wille (Java). The object is to render possible a quantitative estimation of the power of adaptation to darkness. The apparatus consists of a series of plain dark glasses and a light-tight frame. The glasses are graduated thus: No. 1 lets through one-tenth of the light, No. 2 one-hundredth, No. 3 one-thousandth, and so on. The test is a candle flame at half a metre distance and the darkest glass through which this can be seen is the measure of the power of adaptation. It can be used as a measure of night blindness in any disease where this is a symptom. A differentiation must be made between the first or primary adaptation which takes place within 10 or 15 minutes, and the secondary which takes place within half to three-quarters of an hour.

Reports and Analytical Records

GENASPRIN.

(GENATOSAN, LTD., LOUGHBOROUGH, LEICESTERSHIRE.)

Genasprin is an acetyl salicylic acid (aspirin) preparation put up in the form of tablets convenient for the treatment of headache, toothache, neuralgia, neuritis, rheumatism, also for influenza and all feverish conditions. The tablets when analysed were found to contain:—

Acetyl salicylic acid	80 per cent.
Starch	20 „
Ash	Trace.

Free salicylic acid was absent.

The weight of each tablet is 6·5 gr., equivalent to 5 gr. of pure acetyl salicylic acid.

"MINTIES."

(JAMES STEDMAN-HENDERSON SWEETS, LTD., SWEETACRES, SYDNEY, AUSTRALIA.)

Minties are a hard opaque white sweet with a pleasant but not too pronounced flavour of peppermint. They dissolve slowly in the mouth, maintaining the throat in a moist state, and do not adhere to the palate. Analysis shows that the sweets have been made from pure and wholesome materials. Each sweet is wrapped in waxed tissue paper which keeps it in a dry condition and free from extraneous contaminations.

Messrs. ALLEN & HANBURYS, Ltd., have prepared and are now in a position to supply, liver in the form of a fine powder, which is palatable and readily taken by the most fastidious patient. Two ounces of this product are equal in activity to eight ounces of fresh liver. The powder is supplied in 1 oz., 2 oz., 4 oz., and 8 oz. bottles.

THE LANCET.

LONDON: SATURDAY, DECEMBER 10, 1927.

THE SUBNORMAL SCHOOL CHILD.

Principiis obsta: withstand the beginnings; the remedy is prepared too late when, through long delays, diseases have become rooted. OVID'S maxim is illustrated nowhere so well as in the experience of the school medical service. For it is increasingly clear that the school doctor does not see the beginning of many constitutional diseases even in the 5-year-olds as they first enter on school life. Sir GEORGE NEWMAN in his annual report [1] tells us that from one-quarter to one-third of school entrants need medical attention; and with the majority of this group it is not merely a defect here and there that requires to be put right, but is too often a degenerative process, a delicacy of the whole system. And we now seem to have approached the position where this yearly recurring burden of disease shows no substantial change for the better. The variety and vagueness of the terms used to indicate the child in poor physical condition—malnourished, delicate, debilitated, subnormal, neuropathic, and so on—show the difficulty found in defining the picture, and, owing to wide personal variation, even among trained observers, in judging the presence and extent of this inferior metabolic and physiological development, the number of such children appears to vary widely in different localities. In Birmingham, for example, "delicate" children are assessed at 6 per 1000 of the school population, in Manchester at 17·2, in London at 24·5, and in Cumberland at 0·7, and even the higher figures probably represent but a fraction of the total number of school-children whose health is below normal. Detection and treatment of actual abnormality—e.g., of vision, teeth, or hearing, however necessary they may be, are hardly within the province of preventive medicine, which stands for a knowledge of the factors influencing the metabolic processes of growth and nutrition and an ability to recognise early departure from the normal or even the tendency to departure. Apart from congenital and acquired defects the pathological processes that affect children seem to be comparatively few in number, but the sensitiveness of the young child's nervous system is such as to make functional derangements extremely common, and it is the study of these which should reveal types of aberration or diathesis and so bring us in the end to a realisation of causal factors.

It may at present be impossible to differentiate exactly any one diathesis from another; this does not discourage Sir GEORGE NEWMAN, who believes that symptomatic study even now affords broad and helpful indications for practice. Overlapping and ill-defined as they are, he recognises two common types of ill-balanced children: (1) The catarrhal child, in whom there is a tendency towards hypertrophy of the lymphoid tissue and a special susceptibility to inflammatory exudation from mucous surfaces. This child may be either thin and irritable or fat and phlegmatic, he has a tendency to seborrhœa or urticaria, shows irregular furred areas on the tongue, eczematous patches or fissures on the skin, and catarrh of the mucous membranes. (2) The neuropathic child, who shows a lack in nervous regulation of the whole body with atony of the muscles, the weight of the body being balanced by stance rather than by muscular action. This child is pale and thin with round shoulders and excessive lumbar curve. His aspect at rest is listless and apathetic, but he is excitable, impressionable, and sensitive, liable to habit spasm, to headaches, and unexplained pyrexia. Inadequacy whether of nutritional processes or of muscular and nervous control are without question the precursors of much definite ill-health and invalidism, yet the clinical assessment of such children is a matter of great difficulty, for we have no reliable methods for estimating their physical condition by reference to a norm. The commonly employed ratio of weight to height varies in normal children so widely as to be unserviceable for the detection of subnormality in the individual. The child's general physical and mental condition can only be assessed after the closest observation by an experienced clinician of minor inequalities of growth and condition. Where any aberration from the normal is found Sir GEORGE NEWMAN makes the very practical suggestion that the child should be arraigned in the mind of the examiner under the following catechism:—

1. Is the debility due to *general nurtural neglect* in the child's home—insufficient sleep, inadequate and irregular meals, or vitiated atmosphere?

2. Is the debility the manifestation of some particular *disease* such as tuberculosis, rheumatism, or rickets?

3. Is it the *after-effect* of recent illness, measles, or broncho-pneumonia?

4. Is it an *early sign* of some oncoming disease?

5. Is it due primarily not to bodily disease, but to *neuropathic* or psychopathic disease?

It is along such lines that causal factors will be elicited and insight gained into the part played by heredity, postnatal disease and nurture, whether the latter be faulty in respect of insanitary surroundings, improper feeding, unhygienic living, insufficiency of sleep, or the comprehensive neglect of incompetent motherhood.

Whatever may be the final verdict on the causation of physical defect in childhood it is the earliest years preceding school-life, in which the child is being moulded within the limits of heredity, that bear the brunt of responsibility. It is at this time that the child is most susceptible to the influence of environment, favourable or the reverse, and infectious and infective diseases leave the gravest sequelæ. Medical officers who have carried out continuous supervision of children from prenatal existence to school age all agree that the incidence of defects in such supervised children is far less than in the comparable controls. Much of the school medical work is only necessary because mental and physical nurture began too late. It is both expedient and economical for us, Sir GEORGE NEWMAN writes, to do the most we can for the young child from birth to school age. To this end he advocates extension of the maternity and child welfare scheme and its coördination with the school medical service by opening and extending nursery schools, whose chief functions should be the physical and social welfare of the child, coupled with sensory and motor training along the broadest educational lines.

[1] The Health of the School Child. Annual Report of the Chief Medical Officer of the Board of Education for the Year 1926. H.M. Stationery Office. 1*s.* 6*d.*

THE TOXÆMIAS OF PREGNANCY.

A CLINICAL and biochemical study of the toxæmias of pregnancy has appeared this week in the shape of a report[1] to the Medical Research Council from the Research Department of the Glasgow Royal Maternity and Women's Hospital by J. N. CRUICKSHANK, J. HEWITT, and K. L. COUPER. It is based on the record of 200 cases of albuminuria during the second half of pregnancy (excluding albuminuria due to infection of the urinary tract) in all of which a full clinical examination and study of the chemistry of the blood and urine was made. Forty-two other cases of normal pregnancy were investigated in the same way to serve as controls, and the general object was to check and evaluate the changes and reactions in the blood and urine which have been supposed to characterise these toxic states or to indicate disordered function. Though the increasing application of biochemical methods to clinical medicine has raised expectations of rapid advance in the early detection and differentiation of toxic states in pregnancy, such expectations are not realised in this laborious investigation. The results obtained are negative rather than positive, and many biochemical changes, whose diagnostic or prognostic value has been alleged, are shown to be unreliable guides. The report is particularly emphatic on reputed tests of hepatic function, and the statement is made that "not one of them seems to be of practical use in the diagnosis or prognosis of cases of toxæmia." Evidence of impairment of the function of the liver was found in some of the normal controls—more than is usually suspected in normal pregnancy—and there was apparently no correspondence in the abnormal cases between the results of the tests of hepatic function and the severity of the symptoms. This conclusion is of considerable clinical importance as some of these tests have been advocated as affording definite indications for the termination of pregnancy in cases of albuminuria.

As the research was approached from the clinical side the classification in use in the Glasgow Maternity Hospital was adopted, four groups being differentiated. These are albuminuria without toxic symptoms, albuminuria with toxic symptoms (pre-eclampsia), eclampsia, and nephritic toxæmia. Whilst the first three, from the clinical standpoint, seem to form a series in which the same type of toxæmia is seen in increasingly severe degree, a more definitely renal factor is considered to be present in the nephritic type. It is of practical importance to differentiate those cases in which the danger to be feared is immediate—i.e., eclamptic convulsions—from those in which the risk is the more remote one of permanent damage to the kidney; hence the portions of the report that will be found of particular interest to those engaged in obstetric practice are those analysing the symptoms in the various types, such as the correlation of the blood pressure with the degree of albuminuria. In the nephritic group the outstanding difference was a tendency to a slow fall from, or a maintenance of, the original level of the blood pressure in cases in which it was raised, and a similar behaviour of the albuminuria when the amount of albumin was high. Sometimes the degree of albuminuria was raised out of all proportion to the severity of other symptoms. Another feature of this group was that the amount of albumin in the urine was very variable, the variations being independent of the general level of albuminuria. In the other groups, on the other hand, the rise or fall in the amount of albumin was more or less continuous and did not show the same daily variations.

A special study was made of the power to excrete chlorides in view of HARDING and VAN WYCK's assertion that interference with the excretion of chlorides is a characteristic of the toxæmias of pregnancy. These writers also say that it is essential to withdraw all chlorides from the diet. As no ill-effects were observed when increasing doses of salt were given to patients who were recovering on a routine treatment, the conclusion is reached that the views of HARDING and VAN WYCK are incorrect. There are many other matters of interest in this report and not the least are those embodied in the second part of the appendix on the relative incidence of the various forms of toxæmia in a series of 23,630 cases admitted to the Glasgow Maternity Hospital in the ten years 1913–22.

THE GENERAL MEDICAL COUNCIL AND INCOME-TAX.

IT seems rather hard that the General Medical Council, a body created by statute for the performance of certain official functions in relation to the medical profession, should have to pay income-tax as though it were a mere commercial undertaking. Its statutory functions are the supervising, inspecting, and reporting upon medical studies and examinations, the preparation, revision, and issue of the British Pharmacopœia, the registration of qualified practitioners, and the judicial investigation of complaints against them. Towards the cost of performing these duties and the necessary secretariat and office expenses the General Medical Council receives income from registration fees, dividends on investments, and profits on the sale of publications. It had been contended for the Council that its statutory purpose is a charitable purpose—since it is for the benefit of the public that there should be an authoritative list of good doctors and an authoritative list of proper drugs—that the Council exists for that purpose only, and applies its income for that purpose only, and that it should therefore be exempt from income-tax as being a charity. Mr. Justice ROWLATT, however, held that the Council's funds are liable to income-tax assessment. He could see no signs of a trust for the improvement of the practice of medicine; the fact that Parliament has given the Council certain duties which are for the good of the public does not make the Council a charity. To be a charitable body a body must be a charity within the statute 43 Eliz. cap. 4, or must be analogous to bodies which are within that statute. Societies for the benefit of professions or trades are not societies with charitable objects within the meaning of the income-tax law. The General Medical Council, said the judge, is not exactly such a society; its object is to benefit the public rather than the profession; it is only because the public knows that it is protected from bad doctors that the good doctors are benefited. The Council is carrying out statutory duties for the benefit of the public undoubtedly, but Parliament imposes duties for the benefit of the public upon all sorts of bodies and these bodies cannot all be charities. In short, the Council stands outside the statute of Elizabeth and so must pay.

[1] Special Report Series. No. 117. H.M. Stationery Office. 4s.

EXHIBITION AT MIDDLESEX HOSPITAL.—On Thursday, Dec. 15th, from 8.30 till 11 P.M., a scientific exhibition and demonstration will be held in the research departments and laboratories of the Middlesex Hospital and medical school.

Annotations.

"Ne quid nimis."

THE PREVENTION OF DIPHTHERIA.

IN London diphtheria has a higher incidence and mortality than in almost any other European capital, and there seems to be no reason for supposing that its ravages will diminish under present conditions. This fact makes it necessary for the responsible authorities to give careful consideration to the modern methods of controlling the disease. In a preface to Dr. Graham Forbes's recent report the Medical Research Council say that "the large body of evidence already available leaves no doubt that the disease and its often fatal consequences may now fairly be called avoidable"; whilst Sir George Newman, in his report to the Ministry of Health for 1925, stated that "as antitoxin has proved itself the best method of treatment, so immunisation appears to be our best prophylactic." It is not surprising, therefore, that the London County Council should have decided to re-examine the need for taking fresh measures to combat diphtheria, and it would be regrettable if incomplete accounts of their Health Committee's report should give rise to an impression that they are opposed to the active immunisation of school-children. This report was presented on Nov. 29th, and those who study its full text, as given in the *Medical Officer* for Dec. 3rd, will see that the Committee are by no means against Schick-testing and immunisation, though they feel that more evidence is wanted before these measures are applied to the school-children of London as a whole. They point out that there is as yet insufficient evidence to demonstrate their effect on the incidence of diphtheria in any given community in which the whole or the great majority of the child population has been protected; for though in New York City over 600,000 children were tested and over 400,000 immunised between 1916 and 1926, the total number of children of school age is about 1,650,000, and the fact that until this year the disease has been steadily diminishing cannot with certainty be attributed to the use of toxin-antitoxin. On the other hand, the Committee point out that "according to authoritative American observers, as a result of observation over periods ranging from three to six years, no child who received the full immunising course, and had given a Schick-negative reaction, subsequently contracted diphtheria."

Defence of the community against diphtheria does not imply protection of school-children alone, for, as the report remarks, the disease has its most fatal consequences on those who are less than 5 years old and have not yet come under the educational supervision of the London County Council. It is, moreover, the metropolitan boroughs, rather than the county authority, that are primarily responsible for measures to prevent infectious disease. In the City of Westminster and eight other boroughs, with a total population of a million and a half, preventive schemes are already in operation or are sanctioned. The extent to which these are used must depend largely on those who recommend immunisation to the public, as was emphasised at the meeting which we report on p. 1274, and the Council's Health Committee obviously believe that local education, propaganda, and experiment are what is needed at the present time. "It would appear desirable," they say, "that all public health bodies, both voluntary and public, including hospitals, provided they are persuaded as to the soundness of the measure, should assist the borough councils, as far as possible, by the dissemination of authoritative information on the subject."

Although it is considered premature for the County Council to introduce any measure of active immunisation among school-children until further experience is gained, there is apparently no objection to using the school organisation as a means of spreading information to parents who desire to be informed on the subject. In Holborn, Deptford, and Camberwell leaflets prepared by the borough medical officer of health are distributed through the schools, and these facilities will be extended to any other metropolitan boroughs which wish to adopt the same methods. The report recommends "that those parents who desire that their children should be protected by immunisation should be given every opportunity of satisfying their wishes." In conclusion, we may point out that the Council are responsible for a school population of well over 600,000 children. Before applying a comparatively novel method on so large a scale they are justified in awaiting evidence of the most definite kind, and although in the Medical Research Council's publication there is cumulative favourable testimony to the benefit of toxin-antitoxin in residential institutions and hospitals, yet the number of school-children immunised in this country—e.g., in Edinburgh and Aberdeen—has been relatively small. Until more is known of the incidence of the disease among the half million immunised children in New York City, no more than tentative deductions can be drawn about the effect of the new methods on the incidence and mortality in a large community.

THE ACTION OF LIGHT ON THE EYE.

THE retinal currents have often been investigated since their discovery many years ago by F. Holmgren, of Upsala, and they are a valuable index of the activity of the retina. They are due, however, to processes taking place in the eye rather than in the optic nerve, and they do not tell us how the results of the retinal activity are transmitted to the brain. During the past two years E. D. Adrian, by recording action-currents with the capilliary electrometer and an amplifying system, has investigated the impulses occurring in various types of peripheral sense-organ, and has found that there is a close agreement in the behaviour of the different kinds of end-organ and in the impulse discharges set up by them. In experiments (with Rachel Matthews), which have recently been recorded,[1] he has broken new ground by using a special sense-organ, the eye of the conger-eel, and recording the discharge of impulses in the optic nerve, and its relation to the electric changes in the retina. The results of this research show that the activity of the optic nerve is in close agreement with that of sensory nerves, although the mechanism of the receptor apparatus of the eye is naturally far more complex than that of the peripheral sense-organs. By means of a capillary electrometer and valve amplifier, the action-currents of impulses in the optic nerve of the eel and frog were recorded when the retina was stimulated by light. It was found that the action-currents do not differ appreciably in time relations or in grouping from those in other sensory nerves, and their size is not affected by the strength of the stimulus (all-or-nothing relation). When the eye is illuminated, the discharge of impulses rises rapidly to a maximal frequency and then declines at first rapidly and then more slowly. If the illumination has lasted a second or more there is a renewed outburst of impulses when the light is turned off. Owing to the rapid decline in the discharge with steady illumination, a movement of light and shadow in the visual field is a much more effective stimulus than a steady pattern. When the retinal image does not exceed 1 mm. in diameter, the effects of an increase in the size of the image are the same as those of an increased intensity of illumination. Both the latent period and the maximum frequency of the discharge are determined approximately by the quantity of light in unit time, and the frequency is not directly proportional to the area of the retinal image. The relation between area and threshold intensity for the human eye is of the same kind. When the retinal current and the optic nerve discharge are compared, it is found that the initial

[1] Jour. of Physiology, Sept. 9th.

negative reflection of the retinal response occurs at a fixed interval before the beginning of the optic nerve discharge. This "retinal-nerve" interval has an average value of 0·1 second in the eel. The constant "retinal-nerve" interval is probably due to time lost in conduction through the synapses of the retina. When the light is turned off, there is a constant interval between the beginning of the positive retinal response and the "off" discharge in the optic nerve. The parallel effects of an increase of area and an increase of intensity can be explained by assuming a spread of the excitatory process into regions surrounding the illuminated area. This agrees with the fact that it is impossible to confine the discharge to a single fibre of the optic nerve by limiting the size of the image. In a 2–4 lb. conger-eel the optic nerve is 1½–2 cm. long and about 0·5 mm. in diameter. There are large nerve-fibres in the middle and small fibres round the periphery. In a section with a total of 8000 nerve-fibres there are about 6000 small fibres and 2000 large ones. The average number of fibres in the optic nerve of the conger is about 10,000. Owing to the small number of fibres in the optic nerve of the eel and the large retinal area connected with one ganglionic cell, a spread of the excitatory process is not ruled out by the relatively low frequency of the discharge.

THE STATUS OF MENTAL NURSES.

FORTY years ago the asylum attendant was so little removed from the old time "keeper" that she was ignored by the nursing profession and classed with prison warders and policemen. Largely owing to the efforts of the Medico-Psychological Association the status of mental nurses improved, until in the Act of 1919 they were recognised as nurses and included in a supplementary register. The Association sets an examination in mental nursing and awards a certificate of proficiency to successful candidates, and in the great majority of mental hospitals nurses are expected to obtain this. The General Nursing Council, however, sets another examination for mental nurses, and will not admit to the State registers holders of the M.P.A. certificate alone. The G.N.C. examination has been criticised as being too costly and setting too high a standard in general nursing for those who only wish to register as mental nurses. On the other hand, under the Association's syllabus, the training of the mental nurse has been considered deficient in practical bedside nursing. The fact remains that very few nurses in county and city mental hospitals sit for the G.N.C. examination, and their medical superintendents and committees are fully satisfied if they hold the M.P.A. certificate. There is, however, no guarantee that this will continue. During the last three years 3509 mental nurses obtained the Association's certificate, yet only 126 were admitted to the State register. The anomalous situation that has arisen was the subject of discussion at the quarterly meeting of the Medico-Psychological Association on Nov. 17th, when Prof. G. M. Robertson proposed as a resolution :—

"Arising out of the Report of the Royal Commission on Lunacy and Mental Disorders (p. 107, para. 102) and in accordance with the recommendation of the report of the Parliamentary Committee of Enquiry into Nursing, it is resolved that the Royal Medico-Psychological Association makes every endeavour, by negotiation or, failing that, by obtaining the insertion of a provision in any new Lunacy Bill, to secure that the possession of the Certificate of Proficiency in Mental Nursing of the Association entitles the holders thereof (both present and future) to be registered, on payment of the fees, in the Mental Section of the Registers of Nurses of the General Nursing Councils, and to enjoy all the privileges of registered mental nurses; this to be without prejudice to any examination in mental nursing which the General Nursing Councils may think fit to hold, and to be subject in the future to such supervision and standard as the General Nursing Councils may think fit to impose, as in the analogous case of the General Medical Council and medical professional examinations."

While disclaiming any wish to interfere with th prerogatives of the General Nursing Council, Pro Robertson said that he felt it was not wise tha nurses holding the M.P.A. certificate should b excluded from the State registers. A joint Advisor Council of the M.P.A. and the Mental Nursing Com mittee of the G.N.C. ensures practical identity i training and standards between the two bodies, an as Prof. Robertson claimed, mental nursing demand quite as fine (if not finer) mental and moral qualitie as general hospital nursing. He was sure that th Association had no intention of giving up its cert ficate, which he characterised as the greatest piec of work done for the care of the insane during th last 50 years. The policy of the Association, sai Lieut.-Colonel J. R. Lord in supporting the resolu tion, was to coöperate with the General Nursin Councils in the nomination of examiners and th establishment of the syllabus for their mental nursir certificate, and to encourage all mental nurses t secure registration. The brunt of their exclusio from the register, he continued, fell on the priva mental nurses who were kept out of all the princip nursing agencies and coöperations. Under the ne Bill for the registration of nursing homes they wi also be excluded from employment in these home In Colonel Lord's opinion the Association owed it t mental nurses that their proficiency certificate shou carry with it admission to the State registers, ar since much of the work was voluntary it could co duct the examinations more economically than th State could do. He went so far as to declare tha common sense demanded the acceptance of th coöperation offered by the Association to the Gener Nursing Council. Several speakers in the ensuin discussion felt that Prof. Robertson's proposal offere the only reasonable way out of a difficult positio Opposition, led by Dr. J. K. Henderson and D Wolseley Lewis, was based on a difference of opinio as to which method would best increase the stat and advance the interests of the mental nurse. D Henderson preferred the system advanced by th G.N.C., and called on the Association to put asi the sentiment attaching to its past admirable wo and to march loyally with the times. Dr. Lew said that 63 per cent. of the candidates from h hospital were successful in the first examination the G.N.C. Dr. Bedford Pierce took the point view that the nurses were to be compared with th growing child; in the past they had been under th tutelage of the Association, but the time had con when they might be left to go their own way, and was not seemly for the Association to legislate f them without consulting them. Prof. Robertson, replying, agreed that nurses should have bett representation on the Educational Committee of th Medico-Psychological Association. He felt, howeve that mental nurses were better off under the contr of doctors than of their fellow-nurses, who still tend to despise them. He carried his resolution by a lar majority, and the future therefore hangs on th reply of the General Nursing Council to the offer coöperation made to them.

HEPATIC DISTURBANCE AND MIGRAINE.

WHEN all the well-known causes of migraine, which eyestrain may be cited as the commones have been excluded, there remains a large grou of sufferers in whom the pathogenesis of the disea is obscure. Evidence has accumulated in rece years showing that in many such the failure of th liver to carry out its normal detoxicating functio may be the explanation of the disorder. We recent published a paper by Dr. C. H. Rook in which h reported[1] the favourable results of treatment in number of cases where this hypothesis had serv as the basis for his therapy, and a recent communic tion by Dr. J. S. Diamond lends further suppo to the theory.[2] Working on the 35 cases in who

[1] THE LANCET, 1927, i., 705.
[2] Amer. Jour. Med. Sci., 1927, clxxiv., 695.

other causes of migraine had been eliminated, he found evidence of disturbed liver function in more than 90 per cent. The tests employed were the van den Bergh reaction and estimation of the urobilinogen of the urine. The cases were divided into three groups: in the first, there was hemicranial headache with digestive disturbance; in the second group of 15 cases this headache was associated with nausea and vomiting, the classical "bilious attacks"; in the remaining eight cases the abdominal symptoms were predominant and often severe, simulating organic disease of the biliary tract, although neither cholecystography nor laparotomy in five cases revealed any evidence of organic disease. The predominance of females over males and the presence of a family history of migraine were apparent in the whole series in typical manner. In 91 per cent. of the whole series the van den Bergh reaction showed a latent icterus with a bilirubin retention of from 3 to 5 units, the normal being 0·8 units or less. The urobilinogen was similarly increased from 1–35 up to 1–200 in the most extreme cases. It is suggested that this evidence points strongly to hepatic dysfunction. The explanation put forward by Diamond is that the failure of the liver leads to the passage of toxic putrefactive substances from the portal into the general circulation, by means of which vascular changes are produced in the cerebrum or other viscera, all possibly of an anaphylactic nature. The treatment deduced is the withdrawal of animal proteins and the adoption of a strict lacto-vegetarian diet, lacto-dextrin and various sour milks being added with a view to changing the intestinal flora. The occasional use of cholagogues is advocated as an aid to biliary secretion. The favourable results reported by Rook in the paper to which reference has already been made give a hint that drastic dietetic measures are not always wise; Diamond's observations on bilirubin retention, however, may indicate that we are approaching the solution of a problem of great practical importance, even if migraine is sometimes classed amongst the minor maladies by those who do not suffer from it.

POST-VACCINAL ENCEPHALITIS IN HOLLAND.

IN a recent issue of the leading Dutch medical journal Dr. J. T. Terburgh,[1] the medical officer of health at The Hague, deals with the occurrence in Holland of encephalitis after vaccination, to which we have drawn attention on previous occasions.[2] Since his previous communication to the same journal, made in collaboration with Dr. F. S. van Bouwdyk Bastiaanse and Dr. Bijl, Dr. Terburgh has collected a total of 124 cases of "post-vaccinal encephalitis" which have occurred in Holland. He remarks that though this number is regrettably high, the total is small in view of the large number of vaccinations performed in the country. The first of the 124 cases occurred in June, 1923. During 1924, up to August 1st, four more cases were reported, two of which had been vaccinated in March and one in July, while the date of the fourth child's vaccination was not known. Of these five cases, two died. In the following triennium, extending from August 1st, 1924, to August 1st, 1927, there were 119 cases of encephalitis following vaccination in Holland, with 36 deaths. The number of cases in each of these years was 38, 29, and 52, with 15, 4, and 13 deaths respectively. There was thus a fall in the mortality from 40 per cent. to 25 per cent., the average mortality of all the cases being 30 per cent. An explanation of this fall in the mortality during the last three years is that the medical profession began to pay more attention to encephalitis occurring after vaccination, so that more mild cases were notified to the public health authorities. There was a considerable variation in the total number of cases notified each month. While March headed the list with 44 cases, not a single case was notified in November and December, although 70,164 vaccinations were performed in these two months, and there was a considerable irregularity in the number of cases notified in the other months during the triennium in question. It is noteworthy that a much larger proportion of cases occurred in country districts than in large towns. Thus in districts with less than 5000 inhabitants the incidence was three times greater (32 cases per million inhabitants) than in those with more than 100,000 (11 per million). The number of cases in the various Dutch provinces also showed great variations. While, for instance, the province of Zeeland had 52 cases per million inhabitants, the province of Limburg had only two, although more vaccinations were performed in Limburg than in Zeeland during 1925. A table of the encephalitis cases at various ages shows that only one case occurred in each of the first two years of life, as compared with seven in the third year, 34 in the fourth, 27 in the fifth, 37 in the sixth, 15 in the seventh, and 1 between the seventh and twelfth, while the age of one patient was unstated. Another table shows that cases occurred in only 73 of the 1080 odd urban and rural districts in Holland, and that in 49 of the 73 only a single case was notified as compared with 24 in which there were more than one. The vaccine lymph employed in these cases had been prepared at Amsterdam, Rotterdam, and Groningen respectively. 101 cases occurred after use of the Amsterdam lymph, 16 after the Rotterdam lymph, and 6 after the Groningen lymph. This is equivalent to one case for every 6604, 9257, and 5585 vaccinations respectively. The Amsterdam and Groningen lymph, therefore, seems to have been associated with more cases than the Rotterdam lymph. The reaction on the arm varied considerably in the children affected. In only one instance was it severe, while in many cases a normal or slight reaction was reported. Dr. Terburgh does not believe that post-vaccinal encephalitis is caused by the vaccine virus itself or by organisms that gain entrance to the body simultaneously with the vaccine virus; he inclines to the view, which is also held by Prof. H. Aldershoff, director of the Dutch Serological Institute at Utrecht, that the process of vaccination rouses into activity an unknown dormant virus which is the cause of the encephalitis.

[1] Nederlandsch Tijdschrift voor Geneeskunde, Oct. 29th, 1927, i. 1810.

[2] See THE LANCET, 1926, ii., 504 and 764.

MULE-SPINNERS' CANCER.

WE publish in this number an extract from a report, drawn up by Dr. J. Robertson of Darwen for his health committee, in which he deals with cancer in mule-spinners. Dr. Robertson has conducted a careful inquiry into this condition and has recently published a detailed account of his results.[1] He comes to the conclusion that, contrary to the findings of the Departmental Committee which was appointed to consider this condition, scrotal epithelioma in spinners is not caused by oil sprayed from the working mule and that the faller shaft does not take any part in its causation. He finds the causative factors in a dirty scrotum and mechanical friction from the hard cloth of the overalls, the effect of this friction possibly being aggravated by the dye of the overalls and by the use of an inelastic brace. The factors incriminated by Dr. Robertson are however hypothetical, while certain kinds of oil have been shown to be possessed of carcinogenic action, not only for mice but also for men. The careful observations of Dr. Alex. Scott on the occupation dermatoses of paraffin workers in the Scottish shale oil industry[2] afford abundant evidence that certain oils produce cancer of the skin in man, and that the skin of the scrotum is particularly susceptible to this particular agent. Dr. Scott's observations clearly show that for this form of occupational cancer there are certain definite

[1] Jour. of Industrial Hygiene, 1927, ix., 217.

[2] Eighth Scientific Report of the Imperial Cancer Research Fund, and THE LANCET, 1923, ii., 1370.

sites of election where carcinomatous changes occur most frequently, while there are certain areas of skin which seem to be practically immune against the carcinogenic action of these oils. Of the susceptible sites the scrotum is one, the arm, forearm, and the back of the hands is another, while the leg is remarkably resistant. Obviously this site incidence cannot be explained by friction, nor does it depend entirely on the amount of the carcinogenic agent in play. Dr. Robertson's point, that the oil is not carcinogenic because it does not produce cancer of the feet in mule-spinners although it undoubtedly comes into contact with them, seems to be made without due regard to Dr. Scott's observations. Even though it may be true that in mule-spinners the oil is not sprayed directly on the overalls in the region of the scrotum, it does not follow that no oil reaches the scrotum. The practical importance of this problem is to be found in the legal question whether cancer in mule-spinners is an occupational disease requiring compensation or whether it is due rather to the personal habits of the operator. In view of the outstanding facts that cotton-spinners are exposed to the action of an agent of proved carcinogenic power and that the scrotum is the site of election for this agent, it is difficult to see how the Departmental Committee could have arrived at any other conclusion than that "in the absence of exposure to mineral oils there would be no mule-spinners' cancer."

CINEMATOGRAPHY OF INTESTINAL MOVEMENT.

SINCE Grützner in 1898 introduced mercury into the intestines of animals and observed it with the Rontgen rays, many attempts have been made to apply serial photography to the study of intestinal movements. A recent observer, W. C. Alvarez, of San Francisco, has tried to obtain motion pictures of gastric and intestinal peristalsis. As so many loops of intestine were working at the same time, he found it hard to record what was taking place until the loops were marked by black threads, which enabled their individual movements to be followed. The films showed a series of rhythmic segmental movements taking place in the small intestine, corresponding with the churning movements (*Pendelbewegung* of Ludwig). Sometimes a rush movement takes place in the coils, the upper coils trying to hurry the food down and the lower coils pushing it back (*Rollbewegung* of Nothnagel). It surges backwards and forwards, and finally passes along. A striking phenomenon said to be observed is the invagination of one portion of bowel into another. A coil may be sucked in, then a contraction forms below it and pushes the invaginated coil out again. It is doubtful, however, if this can be regarded as a normal process. The conditions of observation, with open abdomen and exposed intestines, under anæsthesia, are by no means natural, and these invaginations may be compared with the agonal intussusceptions frequently found post mortem, which take place upwards or downwards. Cannon's work, using trained unanæsthetised cats and observing loops of bowel with X rays after ingestion of bismuth meals, probably approaches most closely to the normal. He showed that the activity most common in the small intestine is the segmentation of the food in a coil of intestine, rhythmically repeated and followed by a peristaltic movement of the mass to another coil where segmentation again takes place. He also found the usual movement in the proximal part of the colon to be in antiperistaltic waves driving the food back towards the ileocæcal valve which is usually competent to hold solid or semi-solid food from regurgitation into the small bowel. These antiperistaltic waves are interrupted at intervals by a strong general contraction passing along the cæcum and ascending colon; a moment later antiperistaltic waves begin again. The application of serial photography to man has had to wait for the improvement of apparatus and technical methods; but it has been used by some workers for the past few years, at first for research and later in routine examination to ascertain th presence of arrested peristalsis or the constancy c a filling defect in stomach and bowel. A series c six to ten exposures at intervals of one second ma be made while the patient holds the breath, and th superimposed films enable small rigid areas to b easily differentiated from the remaining mobile wa of the viscus. A warning may be offered, howeve that these elaborations of method are no substitut for the trained observer. In the duodenum, fc instance, a few films taken at various angles are bette for diagnosis than a series in the anterior view while it is still better to take the serial film at a angle showing the lesion in profile.

ANÆSTHESIA IN GOITRE SURGERY.

THE merits of different methods of anæsthesia fc goitre operations were discussed at a recent meetin of the Section of Anæsthetics of the Royal Society c Medicine. Mr. T. P. Dunhill gave a broad-minde review of the question and showed that severa different methods might receive equal support i most cases. His own predilection appeared to be fc endotracheal insufflation in cases in which there wa obstructive dyspnœa, and for local analgesia when th patient was very ill. He described one exceptiona case in which he was satisfied that chloroform was th most desirable anæsthetic to employ and had used i with success. In the vast majority of instance however, he believed that chloroform was best avoide in goitre surgery and in this opinion subsequen speakers concurred. Sir James Berry favoured ligh anæsthesia with open ether for most cases, and lai stress on the importance of the anæsthetist bein familiar with the anatomical peculiarities of th trachea in the deformities brought about by variou kinds of goitre. The inadvisability of starting th anæsthetic anywhere but on the operating table wa pointed out by a later speaker, but this is a poin which Sir James Berry had emphasised at a previou meeting when he said that before a goitre operatio the administration of the anæsthetic should never b begun until the surgeon is absolutely ready to operate This is, of course, because it is never certain that slight or even an indiscernible dyspnœa may no with the induction of anæsthesia rapidly become s grave that immediate operation is essential if respira tion is to continue. Mr. Dunhill had previousl stated that every goitre patient should be X raye before operation and this precaution will reveal thos post-sternal tumours which have in the past often bee responsible for the sudden unexpected onset c dyspnœa in early anæsthesia. The goitre patient one for whom the anæsthetic should always be give by a specially skilled person, and this is more particu larly true of the exophthalmic goitre patient. Thes subjects, when a local analgesic is not suitable c desired, provide some of the most trying problem which the surgeon and anæsthetist are ever calle upon to solve. The psychical and the cardia frailties of the patient render her a peculiarly awkwar individual both for the induction and maintenanc of anæsthesia and for safe and thorough operativ measures.

WEIGHT AND SIZE OF BRAIN.

THE Vienna school is responsible for much detaile work on the comparative weight of the human brai according to sex, age, and other factors. It was found for instance, that the brain of the suicide exceede the average by 100 g. Many years, however, hav gone since it was thought that the weight and size c the brain could be taken as an index of the intelligenc of its owner during life. Anyone still holding th primitive view was bound to find his opinion modifie on consideration of the high association areas c Flechsig, those regions which were shown by him t be the last to myelinate. The idea of association put the mere mass of the cerebral elements in a secondar position, and makes of much greater account th

ntelligent use of a relatively smaller quantity by ombination and association between its parts. It is f interest in this connexion to recall the fact that the rain of Neanderthal man was probably larger than any modern brains, but that the primitive human rain was weak in those very regions which, in us, are ne last to myelinate. There can be little doubt, from ny point of view, that Neanderthal man possessed very intelligent brain, but it was lacking in those ider horizons which opened to his successors with ne further development of their higher association echanisms. Recognising this fact, that quality ther than quantity is the important matter, the natomist is nevertheless right in recording the eight and external appearance of such brains as me within his observation; this, in many cases, cludes nearly all that he can observe on his dead aterial, although he may assume many other things om his estimates of proportionate developments, nd so on. Thus such measurements as Dr. Bernard ollander gives, in his letter in our present issue, are ite in order as formal records, made without any ggestion of close correlation between size and ental capacity. It must be admitted that the value, hatever it may be, of such records is impaired in any cases, as Dr. Hollander says, by untoward clusions, to guard against which calls for care in e future. When he states that it is time we began learn something about the varied functions of the rts of the brain already mapped out by anatomical search, it is only fair to point out that this is being ne. The attack is being carried on directly and directly, largely by undermining from below. natomical criteria cannot be satisfied by mere ychological speculation, but demand structural and perimental correlation. Caution would seem justible in placing the seat of the higher intellectual nctions in any particular region of the brain, for it pears reasonable to expect that all parts would have contribute if association is to be at its best. The ellectual impairment which accompanies the ernicke type of aphasia, for instance, without any ntal lesion, is an example of such an interruption. e investigation is, naturally, of highly complex and ficult sort, but in time the various anatomical risions of the brain will doubtless be fitted with some, not all, of their corresponding functions.

LEISHMANIA DONOVANI IN THE SKIN.

AMONG lower animals a variety of Chinese field use, *Cricetulus griseus*, has alone been found sceptible to direct inoculation with kala-azar. recent experiments [1] on this hamster Dr. C. R. sh and Dr. C. H. Hu, of Peking Union Medical llege, showed that it is the cells of the reticuloelothelial system that contain the kala-azar paraes. These cells filled with Leishman-Donovan bodies formed the characteristic lesions of the disease. e clasmocytes (phagocytic wandering cells) of the n, subcutaneous and areolar tissues, were much reased in number and filled with kala-azar bodies; y formed a thick layer of heavily infected tissues ering the animal, though on the external surface he body, after removal of hair, no changes could seen. This finding led these investigators to ewed search of necropsy material from their human es of kala-azar, in none of which had studies of the n been made, and the results were interesting and portant.[2] From one body a small piece of skin from another some subcutaneous tissue was vered, though it could not be ascertained what been the appearance of the skin, or from what of the body the bits had been derived. In both ies typical lesions of kala-azar had been found oughout the viscera, and in the rescued necropsy ments sections revealed many clasmocytes filled n Leishman-Donovan bodies, exactly as they had n found in all the inoculated hamsters; that is, all levels of skin below the corium contained the infected cells, which were collected in masses about sweat glands and arterioles and scattered throughout the corium and into the papillæ just below the epidermis. The lesions were qualitatively like those seen in the oriental sore of *Leishmania tropica*, though less extensive, and a closer relationship between the two diseases is thus established. Though the skin in kala-azar shows areas of dark pigmentation, no characteristic changes have been described, but the skin in these patients has not yet been well studied histologically. The perivascular arrangement, in the skin, of the cells containing Leishman-Donovan bodies makes it very likely that a blood-sucking insect would imbibe the parasites from patients with kala-azar, and the question is now raised whether the Leishman-Donovan bodies described in the peripheral blood really existed there, or only escaped through the wound in the skin along with the blood. In the hamsters some of the parasites probably existed in the peripheral blood, for the few seen in blood films were usually within polymorphonuclear neutrophilic leucocytes. (The record of a case of congenital human kala-azar by Dr. G. C. Low and Dr. W. E. Cooke[3] makes the presence of Leishman-Donovan bodies in the circulating blood highly probable.) It is of immediate practical importance that, if these skin lesions are present constantly in kala-azar, histological examination of the skin may be used as a diagnostic procedure instead of, or supplementary to, punctures of liver and spleen.

[1] Proc. Soc. Exper. Biol. and Med., 1927, xxiv., No. 6.
[2] Jour. Amer. Med. Assoc., Nov. 5th, 1927.

AN INDUSTRIAL MUSEUM.

THE Home Office is to be congratulated upon the organisation of a museum—the first of its kind in this country—which is designed to show the methods, arrangements, and appliances which have been devised to promote the safety, health, and welfare of industrial workers in the manufacturing and other industries coming within the sphere of its administration. Situated at Horseferry-road, Westminster, it occupies a floor space of 10,000 square feet and embraces a Safety Section, consisting of machines and appliances, as they would be installed or used in a factory, photographs and models; a Health Section; and a Welfare Section. In many cases the safety devices are contrasted with machinery and apparatus which are dangerous to the worker. In the first section ingenious devices are shown by which the machines are automatically stopped when the limbs of the worker are in danger of injury, or by which the machine refuses to function unless it is worked in a proper manner, or by which the worker's hands are automatically thrown away from the danger area on an emergency. There are other devices for enclosing the dangerous parts of the machine in cages, or within shields, so that the workers cannot come into contact with such parts, and the fertility displayed by the inventors is surprising. In the sections devoted to the preservation and conservation of health industrial diseases come first, and the exhibit includes photographs in illustration of lead poisoning, silicosis, and the various dermatoses, including epitheliomatous ulceration, to which workmen in special directions are liable. Charts also illustrate the incidence of disease in various industries over a period of years, and models show the lesions produced by disease, while there are microphotographs of lung lesions produced by inhaling industrial dust, and an important series of X ray pictures of the lung. Anthrax and its dangers are depicted by an interesting exhibit prepared by the director of the Home Office Anthrax Disinfecting Station at Liverpool, comparing disinfected and undisinfected wools at various stages of the manufacturing process. The advantages of proper lighting and efficient ventilation are demonstrated by much ingenious apparatus, and ample space is devoted to welfare work. There are model rest-rooms, canteens, and examples of how first-aid should be made available and ambulances be fitted up. The furniture,

[3] THE LANCET, 1926, ii., 1209.

utensils, and appliances for the proper equipment of all these can be seen, as well as examples of protective clothing.

It is intended to keep the museum up to date, so that it shall always exhibit the latest and best methods of promoting the safety and health of industrial workers. Last week the King and Queen paid a visit to the museum, which is now open to the public in the mornings of week-days and on Saturday afternoons, while at other times parties of visitors can see the museum by arrangement. While serving as a useful means of education to employers, employed, inspectors of factories, and welfare workers, and while helping designers to keep in touch with modern machinery, the museum will also give valuable information to medical practitioners and students, brought together in a compact form. Diffusion of knowledge of the highest practical value should follow this wise movement of the Home Office.

A LUNCHEON was held at the Savoy Hotel on Tuesday, Nov. 29th, the occasion being to make a public appeal for the funds of the Hampstead General Hospital. The hon. treasurer of the hospital, Mr. Howard Figgis, was in the chair, and the appeal was definitely stated to be for £20,000, a large proportion being for debts incurred. A letter from A. A. Milne was circulated, pleading wittily for small as well as for large subscriptions, and setting out the interesting point that the out-patient department of the hospital, which now stands in Bayham-street, Camden Town, is on the site where Charles Dickens lived as a boy, when his father first came to London with Mr. Micawber's expectancy that "something would turn up." The guests were also furnished with a statement that the hospital had treated nearly 2000 in-patients in the past 12 months, and that in addition to the payment of its debts, another operating theatre was urgently required as well as an emergency block for cases needing immediate surgical treatment. Thus an increase in annual subscriptions to the amount of £5000 was called for as well as a capital sum. The Bishop of Willesden supported the Chairman's appeal, and was followed by Mr. Bransby Williams, the owner of part of the premises in Bayham-street where Dickens had occupied an attic. Mr. Williams spoke of his intention to give one-man shows in aid of the appeal, and in particular of hoping to arrange an all-star programme of a Dickens play. No one need be reminded that of all English men of letters Dickens would have been the readiest himself to support the appeal. Of the 80,000 out-patients who attended the Hampstead General Hospital last year we may be certain that a large number in that poor and populous neighbourhood belonged to the type whose pathetic struggles and persistent courage and good humour made such splendid material for his romances.

EPSOM COLLEGE.—The Council of the College is about to award a St. Anne's Home Scholarship of £52 a year to the orphan daughter of a medical man who was in independent practice in England or Wales for not less than five years. Candidates must be fully 7 years of age and not over 12 years on May 1st, 1928. Forms of application can be obtained from the Secretary at the office of the College, 49, Bedford-square, London, W.C. 1.

OFFENSIVE GASES IN INDUSTRY.—By the Public Health (Smoke Abatement) Act, 1926, power is given to the Minister of Health to make orders extending the provisions of the Alkali, &c., Works Regulation Act, 1906. A draft order has been prepared extending the list of noxious or offensive gases mentioned in that Act, and extending the list of scheduled works requiring registration. Copies of this order may be seen at the offices of the Ministry of Health, Whitehall, London, S.W. 1, or may be obtained from H.M. Stationery Office, at Adastral House, Kingsway, London, W.C. 2; at York-street, Manchester; or at 1, St. Andrew's-crescent, Cardiff. A public inquiry will be held into the subject matter of the draft order by Dr. T. L. Bailey, at the offices of the Ministry of Health, Whitehall, London, S.W. 1, on Wednesday, Dec. 14th, at 11 A.M. Any person interested may attend and give evidence.

Modern Technique in Treatmen

A Series of Special Articles, contributed by invitati on the Treatment of Medical and Surgical Conditio

CCLIII.

TREATMENT OF CONGENITAL STENOSIS OF THE URINARY MEATUS.

(PIN-HOLE MEATUS).

THIS condition receives little notice either in text-books or teaching of surgery, but it is qu familiar to those whose work is largely with childr and is indeed the most frequent cause of dysuria male infants. It is important to be able to recogn and treat pin-hole meatus because it is often ov looked and the troublesome or even danger symptoms which it occasions are wrongly attribu to other causes. Treatment is nearly always succes and should be undertaken at the earliest possi moment.

Ætiology.

The stenosis is restricted to the distal extremity the urethra and rarely extends for more than a quar of an inch proximally. It is found in babies a f days old, though diagnosis is commoner in the seco third, and fourth years of life. Congenital stenosis the meatus is a particularly accurate name a exactly describes the condition, though it is diffic to account for it any more satisfactorily than we explain the occurrence of other congenital anoma such as cleft-palate and imperforate anus. Associa congenital defects are rare, but I have seen patient in whom a double ureter and pin-hole mea coexisted. The proximal part of the urethra developed from the urogenital sinus and is appare never involved. The distal part which traverses glans penis is formed by the canalisation of a p of epithelium. Pin-hole meatus is due to an ar of this process before a channel of adequate size been formed, but we cannot tell what determines irregular development.

Signs and Symptoms.

The signs and symptoms are due, in the first pla directly to interference with the outflow of urine, a in the second place to the urinary infection wh often follows it. Dysuria is the commonest sympt and the child's mother will almost always desc straining at micturition, a small and intermitt stream, and frequent crying due to pain or the antici tion of pain. In older children there is often inc tinence of urine or so-called frequency of micturit The bladder becomes distended and the child unable or unwilling to pass urine until an overf incontinence is established and a little urine drib away at a time. If such patients are examined t will be found to have a bladder which is disten sometimes to the umbilicus. Acute retention m occur and the patient may pass nothing for 24 ho This condition will gradually progress into overflow incontinence described above. Stagnati of urine in the bladder is often followed by infect and some of these children will arrive with a diagn of pyuria though the cause of the pyuria may h escaped detection. Another important group symptoms is due to an ulcer at the meatus. I surprising how often the parent will describe t "water-blisters" which form at the urethral ori and "then break to form a sore." This sore or u frequently bleeds, so that hæmaturia may be the complaint. This triad of signs (vesicle, ulcer, bleeding) is probably caused by the irritation of a d of infected urine which is retained proximal to point of stenosis. Possibly the child's efforts to rel pain and obstruction by frequent handling of penis are contributing factors. It will be seen t the signs and symptoms are protean, and it is s wonder that a correct diagnosis is often delayed.

Diagnosis.

The chief difficulty in diagnosing pin-hole meatus is remember that such a condition exists. It is like urvy and retropharyngeal abscess which usually offer obstacle to diagnosis, except the all-sufficient one at other diseases which give a rather similar picture ring first to our minds. If poliomyelitis and osteo-yelitis did not exist we should not forget scurvy, d if phimosis never occurred we should more often ink of pin-hole meatus. There is a tendency for me doctors to think that circumcision is the appro-iate treatment for almost any disease or abnormality the baby's penis, and this operation is often rformed without the careful preliminary examina-on that such patients deserve. It must be emphasised at phimosis per se rarely, if ever, obstructs the tflow of urine and, in the absence of balanitis and raphimosis, circumcision is very unlikely to relieve suria.

A simple examination will reveal the presence of n-hole meatus, but it may often be suspected before e examination is made. The most common com-int is dysuria, and this includes all forms of aining before, during, and after micturition. A ry of urethral bleeding, blisters, sores, bed-wetting, d every kind of incontinence of urine or frequency micturition in a small boy should lead to a careful amination of the meatus before other causes are sidered. In some children a long or tight foreskin mpletely prevents this examination, and circumcision ould then be advised without hesitation. The actice of stretching the foreskin by forceps is not a isfactory substitute for circumcision, because it en damages the delicate tissues and fibrosis may low. It is wise to warn the parents that circum-ion may have to be followed by a second small eration if there is any suspicion of stenosis and the atus is invisible. If there is a clear view of the atus it is usually only necessary to look at it to ide if stenosis is present. It is difficult to define size of the normal orifice in exact terms, but the snosed meatus is generally so like a pin-hole that it easy to make the diagnosis. If there is real doubt ether diminution exceeds normal limits an attempt y be made to pass a sterile probe, but experience kes this rarely necessary. The margin of a normal atus may partially adhere and simulate a minute fice, but this pitfall is avoided if the meatus is mpressed between the finger and thumb in an antero-sterior direction (i.e., in the line of the orifice) every suspected case. This simple test will always w the real size of the orifice. Additional informa-n may be gained by watching the stream of urine; calibre must be observed, as well as any hesitancy nterruption in the act. There may also be incom-te emptying of the bladder, this being estimated the eye and hand rather than by an instrument.

Differential Diagnosis.

The differential diagnosis ought to be easy because re is no other condition which gives quite the ne picture. Over-attention to one sign or symptom y, however, cause mistakes if examination of the nary meatus is omitted. Hæmaturia is a common plaint in pin-hole meatus and the parents often not know that the blood is coming from a meatal r. Hæmaturia from a point higher in the urinary t (e.g., nephritis, calculus, oxaluria, hæmophilia, erculosis, or new growth) should not be confused h it. Enuresis is of many kinds and due to many ses, but it is time enough to fall back on bella-na and good advice when a careful examination disclosed no local lesion and the urine is normal. s well to remember that spina bifida occulta and one in the urethra can produce some of the same ptoms as pin-hole meatus. Dermatitis and other erficial lesions of the penis should be recognised. as been recently suggested [1] that dysuria in male nts is often due to a particular kind of dermatitis. was shown that in certain circumstances urine, which is normal when passed, becomes infected from the alimentary canal by a bacillus which liberates ammonia from the urine-soaked napkin. This ammonia fomentation induces a dermatitis of the napkin area, and this in turn causes dysuria. This condition seems uncommon in England, and one suspects that a little cleanliness is enough to avoid it. Epispadias and hypospadias are easily recognised and phimosis has already been considered.

Complications.

The condition, if untreated, produces a series of back-pressure phenomena which may ultimately involve the pelves of the kidneys. Infection of the urinary tract readily occurs, and it seems possible that hydro- and pyo-nephrosis in children may be sometimes the direct outcome of congenital stenosis of the urinary meatus, though there is little evidence on this point.

Treatment.

Treatment is fortunately simple, but demands careful attention to detail if recurrence is to be avoided. Instrumental dilatation is unsuccessful because it is followed by cicatrisation; it should never be performed without first carrying out the little plastic operation which will be described. Circumcision is an essential preliminary in a few patients, but it has usually been done already, and indeed, the parents often attribute the child's symptoms to the operation irrespective of the reasons which occasioned it. Circumcision has not, of course, caused the stenosis, but the operation does sometimes seem to have been performed in the false hope of relieving the urinary obstruction.

Operation: Meatotomy.—The simplest of plastic operations is sufficient, but a general anæsthetic is required. An injection of atropine (gr. 1/150 for a baby) is administered and the patient anæsthetised with ether. Iodine is applied to the glans penis and a fine scalpel or pointed tenotome is introduced ¼ inch into the urinary meatus. An incision is then made into the inferior surface of the urethra traversing the substance of the glans until its inferior surface is reached. A tapered glass bougie is inserted, and if this does not easily pass to the required distance the incision must be carried a little further up the urethra. Bleeding is negligible, and it is now only necessary to prevent the margins of the incision falling together. This is best done by a fishing-gut stitch on either side which passes from the mucous surface of the incised urethra through the glans and then traverses the corona before being tied on the outside of the glans. These stitches should be removed in about five days. The operation is completed by applying a little iodoform ointment on ribbon gauze.

After-treatment is simple but important. Epithelialisation of the raw surface occurs rapidly, but the enlarged meatus must be prevented from contracting. The patient's mother is given a solid glass rod 4 in. long and 1/5 in. in diameter. One end of this is sharply tapered to 1/12 in. By this means the meatus can be dilated from 1/12 to 1/5 of an inch without passing the rod far into the urethra. The instrument must be boiled before use, smeared with iodoform ointment, and introduced twice daily for six weeks.

A similar condition occasionally occurs in patients suffering from penile hypospadias. There is sometimes a minute orifice on the under surface of the penis, and none upon the glans. It may then be necessary to perform the same kind of plastic operation on the existing meatus before undertaking radical treatment for the hypospadias.

Results.—The results which follow this simple procedure in pin-hole meatus are completely satisfactory and permanent. No special surgical skill or instruments are required, and the operation may be performed by any medical man under the most ordinary conditions.

ERIC I. LLOYD, M.B. Camb., F.R.C.S. Eng.,
Surgeon to the Hospital for Sick Children, Great Ormond-street, and to the Princess Louise Hospital for Children, Kensington.

[1] THE LANCET, Sept. 24th, p. 639.

Special Articles.

GENERAL MEDICAL COUNCIL.

FRIDAY, NOV. 25TH: COMMITTEE BUSINESS.

Progress with the Revisions in the Curriculum.

IN our last issue (p. 1206) we referred to the informatory report on this subject which was laid before the Council by the Chairman of the Education Committee and formally adopted. The Council issued in 1922, under the title of "Resolutions of the Council," a set of some 60 recommendations for the improvement of the curriculum in medicine. In 1925 it directed its Education Committee to inquire into the progress made throughout the country towards the readjustments made in the curriculum in conformity with these recommendations, which are recapitulated in the report of the Education Committee to the Council. The report shows that all the bodies excepting the University of St. Andrews have modified their curricula as a result of the suggestions of the Council. The results may be analysed under three headings: (1) the pre-registration examination; (2) the allocation of three of the five years of the curriculum to the subjects of clinical study; and (3) the stressing of the importance in the curriculum of a number of elements hitherto in many cases regarded as minor subjects and somewhat neglected in consequence; this was done with the object of making the training afforded to the practitioner more complete and more practical than formerly.

The Pre-registration Examination.

This proposal was made with the object of lightening the preliminary portion of the course, and sought to turn to this purpose all the assistance which other educational agencies, and in particular the higher secondary schools, are able to afford in laying the scientific foundation for the course. The Council intended that the medical applications of physics, chemistry, biology, anatomy, and physiology should be studied throughout the distinctly professional part of the course, and that the students' knowledge of these applications should be tested in the final examination. A pass in England for the higher school certificate in the subjects of the pre-registration examination (physics and chemistry), provided it includes a practical test, should be regarded as amply sufficient to satisfy the requirements of the examination in these subjects as defined above. The attainment of the higher school certificate demands one to two years of specialised study after the close of the ordinary secondary school course, and is within the range of the educated youth of 17 to 18 years of age. In Scotland a somewhat similar examination has recently been established as a subject of the higher school leaving certificate. Should a longer preparatory training than formerly be imposed upon the prospective student to enable him to attain these higher certificates, the Council have raised the age for students' registration from 16 to 17 years.

All the bodies have accepted and adopted the pre-registration examination. In most cases teaching for it is provided in the medical school either in special classes, or, as in some of the universities, in the ordinary classes of the faculties of science. The special classes vary much in length; some are restricted to one term; others stretch through two; others, again, extend through the complete year.

The Council did not mean that the requirements of the examination should be satisfied by a pass in theoretical physics and chemistry of the preliminary or matriculation examination in general education. The Council have defined it as being "*in addition to* an approved examination in general education," such as the student passes at the close of his school career and before entering the university. One of the bodies apparently accepts a pass in the matriculation examination in physics and chemistry in place of the pre-registration examination. Another point is th the Council intended that the teaching work to e tested by the theoretical and practical examinati before registration should not be any part of the fi years' medical course, defined as a continuous per of 15 terms from the date of registration. Three bod at least, which still keep up the teaching for the first professional examination during the first p of medical study, and have at the same time adopt a period of pre-registration course, have given defin intimation that they are prepared to antedate commencement of professional study to the time the commencement of the pre-registration work, this means tending to shorten and at the same ti to overload the professional course. On the ot hand, there are many bodies which, while giving p registration courses of study, have at the same ti lengthened their courses as a whole to five and a h or six years of study; this seems to be the case in the Universities of London, Manchester, Oxfo Bristol, and Wales, and possibly in other instan shorter periods have been added to the course. would almost seem as if there were in the minds the teachers in medical schools a distrust of the physi science which is taught in the secondary school, a the great majority of the bodies have provided p registration teaching within the medical school its It may be argued that, if the old first professio examination in chemistry, physics, and biology is s to occupy its position in the earlier part of curriculum, there is much to be said for making instruction on which it is based a continuation o pre-registration course, provided at the same ti that the professional course is not allowed to su in length.

The Length of the Course.

The recommendation of the Council is:—

"The period of professional study between the date registration as a medical student and the date of the fi examination for any diploma which entitles its holder to registered under the Medical Acts should be a period certified study of not less than five academic years, in last three years of which clinical subjects shall be studie"

In Section (*d*) of the "Additional Resolutions" Council has recommended:—

"That the curriculum should be so arranged that minimum period of three years shall in every case be av able for study after the completion by the student of professional examinations in anatomy and physiology h at the close of the second year."

The academic year contains nine months, or th terms of three months each.

The great majority of the bodies have accepted a adopted the recommendation that three years sho be devoted to clinical work after the completion the examinations in anatomy and physiology at close of the second year.

Additional Subjects.

These number about 60, and most of them ha been explicitly included by the great majority of bodies. In some cases the regulations for studen have evidently been hastily drawn up and subje have been omitted. Thus, for instance, many bod have not definitely mentioned that out-patie attendance at the hospitals is required. This particularly noted in the reports of the Irish scho which, as a whole, do not seem to do full justice their rules and regulations to the actual hospital wo Yet it is very probable that in all the Irish scho out-patient attendance is either compulsory or gener Under the heading of anatomy and physiology very f of the bodies use the terms biochemistry and b physics, but give courses of instruction in physiologi chemistry and experimental physiology. A number bodies do not specify either the dissection of the ent body or human embryology; this may possibly an oversight in the prospectus.

In introducing the report as summarised above, Humphry Rolleston remarked that among the vari subjects specially recommended for study by t Council, tuberculosis, venereal diseases, and antena

nditions had appeared to the Committee to be of eat importance, as in modern circumstances the portunities afforded to the student for their study d hitherto been inadequate. They had therefore quested Sir George Newman to prepare a personal port on the whole subject, and this had been culated to the licensing bodies. Another subject ich had especially engaged the attention of the mmittee was the teaching of the administration of æsthetics, a personal report on which, by the late of. H. Littlejohn, had also been circulated.

Examination Committee.

Sir Norman Walker remarked that the report of the amination Committee contained an unusual amount detailed information and was an attempt to broadcast to each licensing body an account of what all the hers were doing. He warned the remaining five porations who were still considering whether they uld combine the examinations in anatomy and ysiology that a recommendation towards that urse might shortly be made, but that the Committee re deferring action until after their next visitation. testified to the cordiality with which the Council's resentatives were received on their visits to the mination rooms of the bodies, the usefulness of the cussions which took place, and the valuable hints t the visitors were able to give to some bodies from at they had seen of the work of others. According he bulletin of the Association of American Medical leges the system worked equally well in the United tes. Commenting on the recommendations of the ncil in 1922 with regard to examinations, he laid ss on that clause which enjoined an interval of e years between the professional examination in tomy and physiology and the final examinations, on that calling for a mark of at least 50 per cent. he clinical examination.

The Registration of Students.

report was presented by Sir Humphry Rolleston n regard to the registration of medical students, ch was adopted by the Council.

ONFERENCE ON SPECIAL SCHOOLS.

PROVISION FOR DEFECTIVE CHILDREN.

iscount BURNHAM, presiding at the first session he Twelfth Biennial Conference of the National cial Schools Union held in London on Nov. 25th, that the work done by special schools in various s of the country was so successful that 80 per c. of their past scholars were now in satisfactory loyment.

ajor I. W. HILLS, M.P., in an address on the r-care of the Physically Defective, quoted the sident of the Board of Education, who had , "Approximately 50,000 children in England Wales are suffering from various forms of pling defects. At most one-quarter of these are resent provided for." This figure did not include blind, the deaf, the tuberculous, or the mentally ctive, to say nothing of the large numbers of ldren classed as "delicate."

iss MARTINEAU (Chairman of the Special Schools mittee, Birmingham), in a paper on the Future of Day Special Schools, said that in 1925 32,975 ldren were reported as mentally defective, of m only about half were receiving education. uncertain policy of the Board of Education on future of these schools was at once a stumbling- k for the local authorities who were under- ng their statutory duties conscientiously, and ncouragement to those who ignored these duties failed to provide facilities for these unfortunate ldren.

r. J. M. GATTI (Chairman of the London County ncil), in opening the afternoon session, traced the d growth in educational training, which together medical inspection, had brought about marked covement of the mental and physical condition of the children, so that the average standards of attainment expected were now much higher than those of 50 years ago. This was all to the good, but it had still to be remembered that it was the external stimuli or environment which brought out the inherent potentialities of the individual.

Young Prisoners.

Dr. J. J. LANDERS (Governor of H.M. Prison for Boys, Wandsworth) gave an address on Crime and Mental Deficiency, in which he quoted Dr. Goring's remark that the one significant physical association with criminality is a generally defective physique, and that the one vital mental constitutional factor in the ætiology of crime is defective intelligence. Dr. Landers went on to point out that "mental age," although an important factor, told nothing of the temperament or emotional stability of the delinquent, which were of prime importance in the cases seen in prison work. Here it was the higher grades of mentally defectives that were met with, and of these the great majority showed marked instability which was greatest during adolescence, and this weakness of emotional equilibrium showed itself in uncontrolled behaviour. Stating that only 5 per cent. of all remands at Wandsworth Prison were considered certifiable under the Mental Deficiency Act, Dr. Landers paid a warm tribute to the socialising effect of the special mental defective schools and to the voluntary associations for the care of the feeble-minded. Every mental defective, he said, was a potential delinquent, and the fact that comparatively few were seen in prison work in London was, he thought, largely attributable to the individual attention paid to the children at special schools, where attempts were made to benefit their health, gain their interest, supervise their progress, and, where possible, find suitable occupations for them after they left.

Dr. F. C. SHRUBSALL (Principal Assistant, Public Health Dept., L.C.C.) said that the education provided by the special schools was necessary to bring out the latent possibilities of the feeble-minded. Mixing with their mental equals, and acquiring or developing the ability to perform simple tasks, established self-respect, confidence, and contentment, and made them amenable to communal life. It was necessary, however, to carry this education on through the trying years of adolescence and to maintain supervision after they left school.

Rheumatic Children.

Dr. A. DINGWALL FORDYCE (Certifying Officer to the Liverpool Education Authority), speaking on Mental Efficiency and the Rheumatic Child, drew attention to the lack of administrative measures for combating rheumatism, a disease which perhaps caused more crippling than any of the other great scourges. He pictured the early rheumatic child as highly strung, often irritable, easily fatigued, unable to take part in continuous work or play, and lacking in appetite. Where parents were well-to-do the environment could be altered to suit this child; medical advice was sought early; diet, clothing, schooling, and rest were all carefully arranged. The child could be removed to a more suitable climate; he was guarded against chills and damp; septic foci were removed at once if they developed, and the child reached maturity organically sound. With the poor child it was otherwise. He was in a milieu which could not be changed, and perhaps he did not come under medical supervision until the damage was done. Though intellectually acute at school he was emotionally unstable and scholastically backward. For such children Dr. Fordyce advocated special residential rheumatic schools, where suitable training and discipline with thorough environmental care and prolonged medical supervision could be arranged.

Dr. J. NAIRN DOBBIE (Assistant Medical Officer, L.C.C.) said that the mentally unstable child was also the physically incoördinated type, and the picture drawn by Dr. Fordyce of the early rheumatic was

that of the "difficult" or neurasthenic child, and it was from this class that not only the rheumatic but also most inefficient children were drawn. Though provision must be made for those who were already the victims of rheumatism, it would be well to look to the preventive side. The present-day treatment of rheumatism was not specific, but was exactly the treatment most authorities advised for the neurasthenic child. To be effective it must begin early, and the child must be removed from the psychical and physical incompatibilities of the poor home or, alternatively, these must be rendered as innocuous as possible. To this end Dr. Dobbie suggested broadening out the maternity and child welfare schemes and bridging the gap between them and the school medical service by providing nursery schools run on open-air lines. The economic value of these steps would be apparent in preventing most of the crippling seen among school-children to-day.

INSURANCE AGAINST THE DOCTOR'S BILL.

WE have already referred [1] to a scheme, instituted by Family Medical Services, Ltd., whereby an insurance policy can be taken out to cover the financial risks of medical service. We have now received full particulars from the managing director, Mr. B. B. Ormerod, of 20, York-street, Manchester. He points out that, unlike food, education, clothing, old age, and the other items of the middle-class budget, the doctor's bill cannot be certainly estimated, and provision therefore cannot be made for it. The "Anchor" policy is designed to meet this difficulty. It applies to all persons between the ages of 2 and 55 not included under the National Health Insurance Act, and the premium works out at from 3½*d.* to 1*s.* 6*d.* per week per member of the family. An average premium for two persons would work out as follows:—

General practitioner's account, up to 5*s.* per visit ..	£1	0	0
Operations, including nursing and incidental expenses up to £50	1	5	0
Specialist consultations	0	9	0
Annual premium	£2	14	0

The insured person carries a primary small charge up to £2 in order to eliminate the trouble and expense of small claims. A family of four people could be insured for all general practitioner's fees over £3 and for operations up to £50 per person for an annual premium of £4 5*s.* 6*d.*, and reductions are allowed as the family increases.

This scheme, the financial security of which rests on backing by underwriters at Lloyds, clearly has advantages over the ordinary sickness policy, under which a man insured for sickness benefit receives the same sum whether he has been three weeks in bed at home with influenza and hardly any expenses, or whether he has spent three weeks in a nursing home after an appendicectomy which cost him anything from £50 to £100. Whilst the "Anchor" policy does not at present provide for requirements like massage, spectacles, dental treatment, inoculations, sanatorium and hospital treatment, the organisers are stated to have these "extras" on the medical bill in mind.

Regular Medical Examination.

Closely allied with the insurance policy is the scheme of periodical medical examination. This was the subject of a deputation to the Minister of Health recently from the People's League of Health,[2] when it was urged that insured persons under the National Health Insurance Act should be regularly overhauled by their panel doctors. The Minister was unable to contemplate such a heavy expenditure to the country at present, but private schemes are likely to find favour with a section of the public. The Regular Medical Examination Associati (1, Princess-street, Manchester, and 1, 2, Gre Winchester-street, London, E.C. 2) offers an assuran scheme for half-yearly examinations of perso not covered by the National Health Insurance, the same financial basis as the policy of Fami Medical Services, Ltd. Although two of the leadi life offices in this country have also associat periodic examination with their policies, it is usua only the father of the family who takes out a l insurance, and, so far as we know, the scheme und review is the only one that attempts to meet t need of mother and children as well. That t policy of regular examination is really practical s suggested by the experience of the Metropolit Life Assurance Co., of New York. Under a scheme examination during the last 14 years the avera duration of life of its members has increased by ni years, whereas the extension of life amongst the gene population during this period was only four and a h years. Of those examined, moreover, no less th 99 per cent. were found to be living in some defecti but easily corrected manner.

The annual premium asked by the Regular Medi Examination Association for a bi-annual medi overhaul is 15*s.* for the first member of the fam and 12*s.* for each additional member. Out of th the doctor is offered a fee of 6*s.* and 5*s.* resp tively on each examination. Should the chos medical man demand a higher fee the Associati will negotiate with the patient, but will not themselv bear a higher charge. Proposers who wish to arran for only one examination during the year will al be encouraged.

MEDICINE AND THE LAW.

Doctors and Detailed Bills.

COMMENT was made in this column some weeks a upon the dictum of a county court judge that a doct is in no more privileged position than a tradesman respect of the duty to furnish a detailed account. decision of the King's Bench Division on Nov. 22 throws further light upon this topic. A partnersh of doctors practising at Maidenhead sued for t payment of 3 guineas fees in the Windsor Cou Court. The defendant (husband of the patie obtained from the Registrar an order for the delive of further and better particulars giving details of t medical attention and advice. The plaintiffs appeal to the county court judge against the order, and reversed his Registrar's direction. Thereupon t defendant made an *ex parte* application to the Hi Court for leave to appeal from the decision of t county court judge. From the statement of coun and the comments of Mr. Justice Salter it appears th the claim for 3 guineas had been supplement by a list of dates and fees; particulars had been giv of seven visits at 10*s.* 6*d.* a visit and gas £1 1*s.*, to £4 14*s.* 6*d.*, which in the claim was reduced to £3 But these details were not what the defendant solicitor) wanted; he sought details of the treatme or advice as well. The patient, it was stated, h suffered from a bad mouth caused by a decayed too The defence was that the doctor gave improper advi and the defendant wanted to know in advance of t trial whether the doctor would state that he h attended the patient for any ailment in addition to t bad mouth. Mr. Justice Salter, giving judgme dismissed the application. "We think," he sa "that the county court judge was right. The bill for 3 guineas; if doctors were called upon, wh sending in their bills, to expand the particulars of ea visit, they could never carry on business."

This common-sense decision is welcome, but it m be remembered that decisions of this kind depend ea upon their own set of facts. This was a county co case, and county court judges rightly do not indu the prolonged skirmishing for position which usua precedes a High Court action and which cau expense and delay. Nor does the High Court ligh

[1] THE LANCET, 1925, ii., 616; and Sept. 17th, p. 615.
[2] THE LANCET, Sept. 17th, p. 615.

terfere with the discretion of the county court in ch matters—least of all upon an *ex parte* application. ıe defendant was not disputing the items in the aim, but was setting up a counter-attack of a fferent nature. Every defendant is entitled to have ch information of a plaintiff's claim as will reasonably able the preparation of a defence; but in this case e High Court evidently thought the defendant was eady sufficiently informed.

Gassed in a Bathroom.

There was an unusual claim in the High Court t week against the Lambeth Borough Council by widow whose husband had been found dead in a th in a house rented from the defendant corpora-n, death having been due to carbon monoxide isoning and drowning. The plaintiff's case was t the gas water-heater had been improperly talled by the corporation, that there was no per ventilation in the bathroom, that the products combustion escaped into the room, and that the endant corporation had given no warning to keep window open when the geyser was in use. The ence denied that there had been any negligence wrongful act on the part of the borough council its servants; it asserted that the water-heater s properly fixed and reasonably safe and proper e taken, that an adequate outlet for waste gases s provided, and that sufficient ventilation was wed for the bathroom; if there was any negli-ce (which was denied), it was pleaded that the eased man had been guilty of contributory negli-ce. Giving evidence for the plaintiff, Dr. Welch, isional surgeon of the Lambeth Division, explained effect of carbon monoxide upon the human body, ing that the victim would be unaware that he being poisoned, the gas being tasteless, odourless, colourless; five minutes' exposure to a mixture ir and 1 per cent. of carbon monoxide would, he l, prove fatal. Evidence for the defence was not rd as the case was settled, the borough council king an *ex gratia* payment of £1000 (£100 to the ow and £300 to each of three children), as well assisting with the plaintiff's costs. There were ious nice questions of law thus left undecided; as doubtful whether the claim would have suc-ded as based on negligence or whether it was a ter of landlord and tenant. It could not be gested that any notice had been given by the nt of the alleged defect in the bathroom. There a further point whether the house could be ribed as unfit for human habitation within the ning of the Housing Act; if the answer had been he affirmative, the plaintiff's claim would have better fortified. It was clearly a satisfactory ng to the case to make a compassionate payment to plaintiff; whatever the legal liability, the circum-ces suggest that detailed and definite explanation ld be given to tenants of the possible danger of g a geyser without adequate ventilation.

Paternity and Blood Tests.

ıe *Times* of Dec. 5th published a message from Munich correspondent describing the use of d tests to determine paternity in the course of minal trial in Württemberg. A woman applying an affiliation order had sworn that a particular was the father of her illegitimate child. Tests made of the blood of the child, the mother, and lleged father, and it is reported that the qualities ıe child's blood bore no resemblance to those r of the man or the woman, but, on the contrary, aled entirely different characteristics. Apparently ourt accepted the results of these tests as proof the paternity of the child must be attributed to other man. It also accepted them as proof the woman had committed perjury, and she was nced to six months' imprisonment.

would be rash to draw conclusions from what is ssarily a brief report. In England Sir Frank old, K.C., aroused interest a year or two ago ating from the bench at Devon Quarter Sessions science might soon supply a sure and simple test in bastardy cases. Judging, however, from discussions at the Medico-Legal Society it would seem possible to be certain only in a limited number of cases—e.g., a child whose blood is found to be Group II could not have sprung from two Group IV parents, or, more generally, the appearance of properties A or B in the offspring when absent in the parents constitutes proof of non-paternity. The *Times* of Dec. 6th stated that the highest Prussian court has pronounced a judgment contrary to that of the Württemberg tribunal. Medical evidence was apparently given to the effect that, out of 2093 blood tests made in 1926, all except one indicated the affinity of blood between child and parent. This one exception, however, rendered the test inconclusive for legal purposes. In our own criminal courts scientific evidence has not always been accepted without reservation. It is recorded that in a trial at Taunton Assizes in 1857 Lord Chief Justice Cockburn expressed considerable doubt of the trustworthiness of scientific evidence differentiating the corpuscles in human blood from those in the blood of an ox, sheep, or pig. He advised the jury not to convict "on this scientific speculation alone." Similarly scientific proof of identification by finger-print seems seldom to be placed before a jury. The police rely upon it in the detection of a criminal, but do not greatly employ it for the purpose of obtaining a conviction.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Chronic Nephritis and the Salt-free Diet.

AT the last medical congress in Paris, which was held in October, there was a long discussion on the various forms of œdema, and the papers read by Profs. Autel, Mauriac, Gowaerts, Vallery-Radot, and Nicaud were among the most important contributions that have been made to our knowledge of this subject. In France Widal's theory has been generally accepted, and the rôle of sodium chloride in the pathogenesis of œdema in Bright's disease has been undisputed until recently. Though nowadays the physiochemical theory has many adherents we remain faithful in practice to Widal's views, and in consequence to the salt-free diet. Daily experience shows that this is superior to a purely milk diet for nephritis with œdema, and that it is also useful in nephrosclerosis without œdema. There is in this no contradiction. The work of Blum of Strasbourg and of Mauriac of Bordeaux has shown that œdema chiefly depends on the retention of sodium, whereas in nephrosclerotics one often finds retention not of sodium, but of chlorine. This explains how the salt-free diet can be useful in the two different forms of renal disease.

The Centenary of Villemin.

We have just been celebrating the centenary of the birth of Villemin, who in 1861 discovered that tubercle was virulent and infectious. What objections were raised against him; yet his discovery triumphed, thanks to the work of Koch, who confirmed his findings. However great was the merit of the German bacteriologist, it cannot be ignored that Villemin's research on virulence had greater importance as regards the history of the pathology of tuberculosis than the discovery of the specific bacillus. His doctrine, for 50 years regarded as the only accurate one, is to-day being challenged, and many specialists are again taking up the ancient theory that the disease is hereditary. Their arguments, based on recent bacteriological research which has shown the multiple forms of the tubercle bacillus, are not without value, and perhaps the heredity theory will again take its place beside the contagion theory.

Treatment of Pernicious Anæmia.

The use of liver for pernicious anæmia is becoming steadily more popular in France, an interesting case being recently reported to the Société Médicale des

Hôpitaux of Paris by Noël Fiessinger and Castéran. The patient had reached a really grave anæmic condition and the size of her spleen made it seem that splenectomy would have to be done almost at once. Liver was given at first in the form of sandwiches, between slices of bread and butter and spread with anchovy. Daily doses of 100 to 250 g. of raw calves' liver were thus administered and the patient went on taking it for four months without break. The result was an increase in the number of red corpuscles and the percentage of hæmoglobin. The size of the spleen diminished and the patient's condition has, in fact, been completely transformed.

Of the diplomas awarded in 1926–27 by the various French universities, 1049 were official, conferring the right to practise, and 112 were the so-called "universitaire" diplomas, which are merely honorary.

An American Medical Organisation has just been formed at Paris by Dr. Joseph Haas, of New York, who will serve as vice-president. The objects of the organisation are to promote scientific advancement and social intercourse, and to provide general and special information for American medical men studying in Paris.

The Académie des Sciences of the Institut de France has awarded three Montyon prizes, of 2500 francs each, to Bensaude, for his work on endoscopy, rectoscopy, and sigmoidoscopy; to Carré, assistant director of the French National Laboratory, for veterinary research; and to Levaditi, for his studies on herpes and zoster. Zoeller received honourable mention for his investigations on diphtheria; the Barbier prize, of 2000 francs, was granted to Leri, for his studies on bones and joints; whilst the two Sergents jointly received the Chaussier prize of 10,000 francs, for their 25 years' work on malaria in Algeria.

SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

Excessive Prescribing.

THE recent appeals of Glasgow doctors from the findings of the Panel and Insurance Committees have now been disposed of, after full inquiry by the Scottish Board of Health. Of the appellants seven lose their case and the surcharges amount to £205, with five guineas expenses in each case. It is disappointing that after 15 years of continuous supervision, criticism, and control of prescribing from the standpoint of the drug fund, there should still be so many cases of real carelessness—for that must be the meaning of it—leading to excess of what has been found reasonable by a body of practitioners like the Panel Committee. There must, however, be a deep root to these anomalies. The medical schools in their teaching take no account of prices and economy of quantities; this is a side of prescribing that is simply not taught. In all conscience the curriculum is heavily loaded already, but when we reflect that this matter of prescribing affects some 16 million of the population of this country it is time that some attention was given at the right stage to the necessity for taking price and utility as well as elegance into account. The Glasgow cases are striking, but they do not stand alone.

Edinburgh Slums.

Edinburgh has opened an inquiry into another big slum clearance scheme. The special part of the scheme now under investigation concerns the St. Leonards ward, which has long been known as one of the most congested sections of the city. The usual statistics have been prepared by the medical officer of health; he shows that infant mortality for the whole city is 88, but for St. Leonards 104, and for all the scheduled areas taken together 132. The death-rate over the group of 15 areas as a whole is 21·9 against 14·4 for the whole city, and it is these unfailing differences of the unhealthy areas that continue to justify the attack on bad housing. No doubt there are other factors than mere house room; but those other factors cannot be handled so long as the house room remains what it is. Statisticians sometimes comment on the fallacious reasons given for the incidence of diseases like tuberculosis and maintain that the lower-class houses necessarily are occupied by the less efficient classes of the population. The doctrine is a comfortable one; but the figures recently produced in Glasgow and those invariably found where slums are tackled seriously, make it quite clear that, whatever be the ultimate causal interpretation, the higher disease- and death-rates are always found where there is overcrowding and the degradations associated with it, and those high rates tend to come down as soon as the populations are transferred to the new houses. This is good enough for practice. In Edinburgh the real battle will begin when the problem of the "Royal Mile" comes to be faced. One hopes that the city will make some serious effort to reconcile modern town-planning with the respect due to Scottish history. Germany in her handsome treatment of the mediæval towns like Rothenberg, Nuremberg, Hildesheim, and ancient Leipzig, to name only a few, has shown by her practice what the ancient cities owe to themselves.

Royal Faculty of Physicians and Surgeons of Glasgow: President's Badge.

On the conclusion of his term of office as President, Mr. R. M. Buchanan presented to the Faculty a badge of office to be worn by the President, and at the November meeting he invested with it his successor, Dr. G. H. Edington.

The badge is in the form of an oval medallion in gold, on the obverse of which are the armorial bearings of the Faculty. The bearings are in enamel of the appropriate heraldic colours. They consist of a shield with, in first and fourth quarters, azure, an Æsculapian rod in pale between a lancet on the dexter and a poppy slipped and seeded on the sinister, all proper; in second quarter, the Royal Arms of Scotland; and in the third quarter the arms of the City of Glasgow. Above the shield is placed a helmet befitting the degree of the Faculty, above which is the crest, an open book surrounded by an antique burning lamp, and above all the motto, *Conjurat amice*. The supporters are, dexter, Minerva, and sinister, Hygeia, and on a compartment below the shield this motto, *Non vivere sed valere vita*. These arms were adopted in 1863, in substitution for the previous armorial symbol, and were matriculated in 1910, following on the grant of the title "Royal" by the late King Edward VII. At the time of their adoption, careful search of the records of the Faculty failed to throw any light on the date or the circumstances of the adoption of the previous symbol. The old symbol was the rod and serpent in the centre of a shield and flanked by lancet and poppy; and the motto was the *Conjurat amice* of Horace, which might be rendered "in amity to dwell," and might be considered an allusion to the dual composition of the Faculty. No reason is given in the Minute of 1863 for the adoption of the second motto. It is evidently been held to express the chief object of the Faculty—namely, care for the health of the public. The reverse of the medallion is inscribed *Donum Dedit R. M. B. MCMXXV*.

The badge, which is worn suspended round the neck by a dark blue riband, was designed and manufactured by Edwards, Buchanan-street, Glasgow.

Public Health Services.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

THE following are 1926 statistics of two seaports, three textile, and three cathedral towns :—

Name of district and estimated mid-year population.	Birth-rate.	Death-rates per 1000 of the population.					Death-rates per 1000 births.		
		All causes.	Tuberculosis.	Cancer.	Respiratory diseases with influenza.	Heart disease.	Diarrhœa, &c., under 2 years.	Infant mortality.	Maternal mortality from childbirth.
ull .. .. (294,600)	21·6	12·8	1·18	1·37	2·8	1·5	13·5	82	3·3
ortsmouth .. (231,500)	18·2	11·7	0·95	1·38	1·9	1·6	8·0	55	3·1
radford .. (288,700)	16·3	13·6	1·01	1·59	2·1	1·4	15·3	92	7·0
olton .. .. (177,000)	16·3	14·1	0·93	1·33	2·8	1·8	16·2	101	3·4
reston .. .. (124,200)	17·4	12·8	1·13	1·34	2·2	1·7	11·1	90	7·8
orwich .. (123,500)	17·3	10·6	0·91	1·34	—	—	3·7	53	3·7
ork .. .. (84,430)	18·0	12·0	0·86	1·39	1·6	2·2	10·9	65	4·5
ester .. .. (41,913)	19·9	13·0	1·03	1·43	2·6	1·4	11·9	80	2·4

The neonatal mortalities were markedly higher in the mill wns: Bradford 39, Bolton 44, and Preston 42; to be compared ch Hull 30, Portsmouth 23, Norwich 21, York 34, and ester 26.

Hull.

Dr. W. Allen Daley reports that closer coöperation s been secured with the school medical department. n Sept. 1st Dr. James Fraser, the first school medical icer, retired. The medical officer of health has now en appointed school medical officer and all the eventive medical services are under a unified mmand. All the clinics will be made available for ses of every age.

The new municipal V.D. clinic was opened in tober and takes the place of the clinic previously ried on at the Royal Infirmary. The new building thoroughly well equipped as shown by plans and otographs. The men's entrance is in one street d the women's in another. Dr. Edward Harrison, senior clinical officer, and Dr. R. J. Barlee, assistant, both "part-time," conduct all the ekly sessions except one for married women and ldren, which is taken by Dr. Susan Gilchrist, the ternity and child welfare officer. In the early days, s Dr. Daley, it was thought that an ad hoc clinic uld not prove successful, but there is every reason believe that the new Hull centre will be quite as ccessful as ad hoc centres have proved elsewhere. e most serious defect of the scheme has always been failure of patients to make continuous attend- e and the failure is not peculiar to seamen. "No than 160 male cases of syphilis ceased treatment ore completing the first course" out of a total of . When the year opened an outbreak of small-pox in progress, which began in October, 1925, and ases occurred in the first quarter of 1926, the last e being reported on March 16th. On Sept. 30th se of chicken-pox was notified in an unvaccinated , which was visited by the M.O.H. and ultimately nd to be small-pox. One further case in an unvac- ted boy was the only result.

health exhibition held in the city hall, Oct. 16th 23rd, appeared to be productive of much good. s was, of course, in addition to other methods of th education as to which Dr. Daley puts the work he health visitors first, but thinks their importance ld be rivalled by health teaching in the schools if this were done according to a fixed syllabus instead of in the present haphazard way. Dr. Daley pleads for an early decision as to the future of the Poor-law hospitals and that the dual hospital service at present provided by the ratepayers should be unified and put to the best possible use whatever its origin. Much activity is being displayed as regards environmental hygiene. The water-supply of the courts is being improved. Agricultural drains run through the city and a nuisance is caused by the silt removed from them when they are cleansed; some of the more important are therefore being cleansed by the city engineer. It is hoped to secure by legislation standard dust-bins for all premises and not only for dwelling-houses. At present more than half the refuse is taken to tips. The tips are becoming filled up and the best method of disposing of the refuse is under consideration. The privy-conversion scheme is being carried out at a very rapid rate; 7182 conservancy closets were dealt with during the year and there are now only 17,500 to be dealt with.

A record of ultra-violet light is kept on the top of the telephone exchange. Hull receives less of this light than the few places with which it can be compared. Hours of bright sunshine in 1926 were 1299·2, to be compared with 1117·9 in 1925. An effort is being made to reduce domestic smoke on the municipal housing estate by the provision of a "Cookanheat" apparatus. This has already been fixed in 476 houses and will be installed in 1724 more. "All the cooking is done on the same coke-heated stove which supplies an abundant amount of hot water for baths and washing and also heats the whole house by means of a radiator in every room." In the 69,000 houses of the city there are 33,658 gas-cookers and 23,152 gas-fires. A successful course of lectures and demonstrations on smoke prevention for stokers was held at the Technical College with an average attendance of 60. Fish-curing establishments increased from 50 to 56 during the year, and the health committee has decided that in future these places must be fitted with the revolving-hooded type of cowl.

The health committee takes the stand that persons who sell milk in unopened bottles must be registered as purveyors of milk, even although their premises are not legally dairies. Of 28 samples of milk examined five contained tubercle bacilli. Two farms were involved, but in neither case was the offending cow found. Satisfactory arrangements have been made to meet the puerperal fever regulations and antenatal work makes some progress. The births numbered about 6400 and 1153 patients attended the two ante-natal clinics conducted at the maternity centre by Dr. Gilchrist and at the maternity home by Dr. E. M. Townend. The number of cases delivered in the home during the year was 532, 495 by midwives and 37 by doctors.

Portsmouth.

Dr. A. Mearns Fraser says that further steps were taken towards the provision of a new combined maternity hospital and child welfare centre, and that progress has also been made during 1926 in housing. The number of houses completed was 682, more than in any year since the pre-war period, when the annual average was 760. A pair of Atholl steel houses are to be erected as an experiment. At a meeting with representatives of the county council and of the rural district councils of Fareham and Havant, a decision in favour of a planning scheme for the city and the immediately adjoining areas was arrived at.

Dr. A. Campbell, the V.D. medical officer, gives some particulars of the work of the clinic during the last ten years. During the first five years most of the patients were in the acute infectious stage. Now a considerable percentage are persons who contracted venereal disease many years ago. It is claimed that the official treatment of gonorrhœa in females will remove the need for much of the treatment which has hitherto been required in hospitals for women. The patients include young girls, but the number of children infected in Portsmouth is quite small.

Regular and adequate treatment for 185 cases of stricture has been provided. Dr. Campbell refers to syphilis as "a rapidly disappearing disease," and states that "223 cases of neurosyphilis are now living under happier conditions, most of them able to work and exist in comfort, a marked contrast to the outlook for such cases ten years ago." The 547 cases of congenital syphilis are with few exceptions growing up into healthy members of the community. Dr. Campbell concludes that the diminution of syphilis is due in a large measure to free treatment and increased knowledge of prophylaxis, the latter being of much more value in syphilis than in gonorrhœa. Dr. Ruby N. Foggie, the child welfare medical officer, held an antenatal clinic at the maternity hospital which was attended by 724 women. Antenatal work is also carried on at the Royal Naval Maternity Home. An insurance scheme is to be put in operation for the payment of the fees of doctors called in by midwives, on the same lines as that for the county of Hampshire. 118 children suffering from various forms of crippling were sent to the Treloar hospitals, where 55 beds are reserved for Portsmouth.

The hours of bright sunshine recorded during the year were 1688, as compared with an annual average for the previous decade of 1796.

Bradford.

Dr. J. J. Buchanan reports that 1230 privies were converted into water-closets, leaving only 1170 to be dealt with. There are, however, 7440 houses supplied by waste-water closets. During the coal dispute foreign coal with a higher ash and a lower volatile matter content was burnt and caused less smoke, although much inferior in calorific value. Observations show that the deposit of cinder grit is usually greater at night time and that grit is chiefly deposited within 400 yards of a chimney, while fine ash or flue dust may be carried 1000 yards with ordinary wind velocities. The grit emission from chimneys is usually due to the use of low quality fine slack, and Dr. Buchan is thankful that few firms show such callous indifference to the welfare of the surrounding inhabitants as to burn this class of fuel. About half the milk of Bradford is produced within the city by a cow population numbering 3322. Among these the veterinary inspector found 21 tuberculous animals during the year; 14 had tubercle of the udder and seven other forms of tuberculosis; for these 21 animals the owners received £125 19*s.* 6*d.* as compensation, while the salvage was £70 13*s.* 1*d.* Of the 311 samples examined for tubercle 32 gave a positive result and all were from outside milks. Fourteen farms were involved. On six of these no tuberculous udder was found, but on the other eight farms ten cows with tuberculous udders were found and slaughtered.

Bacteriological examination of 1808 samples of shell-fish showed that, "as in previous years," the majority of mussels and cockles are heavily polluted. The water supplied from Barden Moor and Thornton Moor, though better than last year, was still somewhat unsatisfactory, judged by the presence of *B. coli.* The possibility of an avian source for these bacilli is not touched on however. The radiographic work for the tuberculosis dispensary is carried out at St. Luke's Hospital, but it is found that for the control of artificial pneumothorax treatment "screening" is of vital importance, and a high-powered X ray unit is therefore needed for the dispensary. The removal of the V.D. centre to the municipal hospital has not prejudiced its efficiency, and it is thought that the attendances have been improved by the local powers for compulsory notification for cases who fail to persevere with treatment. The existence of these powers has caused patients to resume treatment who have discontinued, and there is no reason to think that it has had the effect of deterring patients from seeking treatment.

The number of new houses erected during the year was 2193, of which 1241 were municipal. This is the highest number of new houses in the records of the city. At the close of the year there were 1161 municipal houses under contract. The Bradford Corporation Act of 1925 gives power for the removal to an institution of persons who are physically incapable of keeping their homes in a sanitary condition. This power was used in two cases during the year, one, a female, aged 70, of intemperate habits and other, a male of 79, physically incapable owing to cerebral hæmorrhage.

Bolton.

Dr. C. W. Paget Moffatt, referring to the increase in the infant mortality-rate from 87 in 1925 to 101 in 1926, says that the main factor in the reduction of infant mortality is the education of the mother, and that there is ample provision in Bolton for assistance to mothers in the care of their infants. He also emphasises what is being done to prevent maternal deaths from childbirth. 2600 out of the 2900 births were attended by midwives and an antenatal clinic is provided to which they may send their cases where any difficulty is anticipated. A trained nurse is available to visit the patient, and the advice of a consultant whenever the medical attendant wishes. There are facilities for laboratory examinations and an excellent maternity home with 18 beds at moderate charges and free hospital treatment when needed.

The scheme for the conversion of privies and pail closets makes good progress; 1562 of the former and 351 of the latter were replaced by water-closets during the year. The local authority makes a grant of £4 for each conversion, and Dr. Moffatt thinks that a similar grant should be available for the replacement of the 15,000 waste-water closets by fresh-water closets. The public abattoirs in Bolton only deal with less than one-sixth of the slaughtering as there are still 19 private slaughter-houses. The travelling vans cause no anxiety; 65 of these passed through in 1926. Their occupants were healthy and took a pride in seeing that their conditions were good. The stationary vans are "a totally different proposition." They number about 70; many are merely large wooden boxes on old lorries and they constitute a distinct danger to health.

About 2620 cows are stalled in the borough, and among these during the year nine cows with tubercle of the udder were found. There were two successful prosecutions under the Tuberculosis Order, one for failure to notify (penalty £5) and the other for failure to isolate a diseased animal (fined 5*s.*). The public analyst (Mr. H. Hurst) states that over 70 per cent. of the milk vended in Bolton comes up to the Grade A standard, and he thinks that the standards for all designated milks might be raised. Since September 1924, insulin has been supplied free to uninsured patients who could not afford to pay for it. The hours of bright sunshine were only 945, 66 hours below the normal.

Preston.

Dr. F. A. Sharpe says the measures for the protection of infant life have been amplified by the inauguration of a central clinic where facilities are provided for the treatment of minor ailments in children and of dental defects in nursing and expectant mothers and young children, and there is a qualified masseuse to deal with cases of rickets and malnutrition. Dr. Sharpe thinks there is much unnecessary poor health among children caused by errors in nutrition, and that the unwearying efforts of the health visitors and the classes in cookery and housewifery organised by the Voluntary Workers' Association are of great value in this respect. The tuberculosis scheme has been strengthened by the opening of the "Chestnuts" Sanatorium in September with 13 beds for males and 17 for women and children. Dr. Sharpe does not anticipate, however, any striking progress until trade and housing are better and there is a marked improvement in atmospheric purity. He laments the apathetic attitude adopted towards smoke pollution.

The picking of mussels from the Ribble estuary was prohibited in October, 1923. The inspector paid several visits to the beds during 1926; it was suspected that

mussels were brought up the river from Lytham, and plain-clothes constables were successful in making one seizure of bags of mussels. Out of 137 samples of milk 2 were found to contain the tubercle bacillus, and in the follow-up 16 farms were visited and 12 cows affected by tubercle of the udder were found and slaughtered. Dr. Sharpe points out that this weeding out of tuberculous udders by milk sampling has only a limited application, and that uniform veterinary inspection of all milking cattle should be the real objective throughout the country.

Norwich.

Dr. V. F. Soothill, who succeeded Dr. Cooper Pattin (on his resignation after 33 years' service) on March 31st, has much to say about the evil conditions of life in the older parts of the city. The overcrowding is explained by a chart, which shows that the decline of house-building began in the first years of the century and that there are nearly 20 years of arrears to be made up. During 1926 776 new houses were completed, of which 544 were municipal and of which 13, erected by other enterprise, received State assistance. At the end of June an outbreak of paratyphoid fever began. There were over 60 cases, mostly in July. Milk and ice-cream both came under suspicion, but the exact cause of the outbreak was not clear. There were no deaths.

York.

Dr. P. R. McNaught says the noteworthy features of the year were the approval of the council to the scheme for the extension of the isolation hospital and the making of arrangements for the treatment of puerperal fever and pyrexia. In the older parts of the city there are many old and dilapidated houses and overcrowding of houses on unsuitable sites. At the end of the year the corporation had completed 711 houses on their Tang Hall estate and 374 more houses were in course of erection. The waiting-list for Tang Hall estate houses is 1700 strong. The overcrowded houses known to the health department number 250 and no effective action can be taken owing to the shortage. It is estimated that 682 houses should be closed; 200 of these are in the Hope-street unhealthy area, the scheme for which has received the sanction of the Ministry. This area covers 3½ acres and houses a population of 805. A nuisance caused by the emission of smoke, gaseous vapours, and grit from the water-gas plant of the York Gas Co. arose in 1925, but up to now no remedy has been provided. A grit nuisance caused by the municipal electricity works has been remedied by additions to the steam-raising plant. The hours of bright sunshine totalled 1244·3, as compared with 1334·3 in 1925.

Chester.

Dr. D. Rennet says that the city's water-supply is taken from the river Dee, within the city boundary, about one and a half miles above the weir. Chester has no control over the many sources of pollution of the Dee. Some years ago an attempt was made by another authority to obtain water from one of the largest and purest tributaries of the Dee. A similar proposal is again under consideration, but Chester has taken no steps either to prevent this or to ensure an adequate and satisfactory supply for itself. The chemical and bacteriological examinations confirm the unsatisfactory nature of the present water-supply. Progress has been made in the matter of housing, but many years will be needed at the present rate to cope with the serious overcrowding. The new houses built in the city during the year numbered 238, and in addition the corporation built 102 outside their boundary. Meat-marking is now well established at the abattoir and the butchers fix up explanatory cards in their shops as to the origin of the mark. It has not been found practicable to extend the marking system to the seven private slaughter-houses scattered about the city. A butcher and pig-dealer were fined £20 and £10 respectively in connexion with the attempt to sell obviously tuberculous pork.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED NOV. 26TH, 1927.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 233 (last week 226); scarlet fever, 2218; diphtheria, 1500; enteric fever, 144; pneumonia, 1175; puerperal fever, 28; puerperal pyrexia, 100; cerebro-spinal fever, 9; acute poliomyelitis, 10; acute polio-encephalitis, 4; encephalitis lethargica, 28; dysentery, 16; ophthalmia neonatorum, 82. There was no case of cholera, plague, or typhus fever notified during the week.

Of the 144 cases of enteric fever 54 were notified from the county of Hertford (where the milk-borne outbreak of paratyphoid is on the wane); 46 of these were from Hemel Hempstead (U. and R.D.), 5 from Watford (U. and R.D.), and 1 each from Barnet, Great Berkhamsted, and St. Albans.

Deaths.—In the aggregate of great towns, including London, there was no death from small-pox, 3 (1) from enteric fever, 39 (9) from measles, 4 (0) from scarlet fever, 6 (0) from whooping-cough, 32 (8) from diphtheria, 50 (10) from diarrhœa and enteritis under two years, and 66 (10) from influenza. The figures in parentheses are those for London itself. The deaths from enteric fever outside London occurred in Reading and Bristol. The number of stillbirths registered during the week was 295 in the great towns, including 49 in London.

Obituary.

MAITLAND THOMPSON, M.R.C.S. ENG.

WE have to record the sudden death of Dr. Maitland Thompson, at the age of 66, at his home in Richmond, Surrey. The son of the late Mr. Thompson, J.P., of Workington, Cumberland, he was educated at Repton and St. Bartholomew's Hospital, and qualified as L.R.C.P. Edin. and M.R.C.S. Eng. in 1884. After holding the posts of house surgeon and house physician at the West London Hospital in 1886 he was attached to the Scots Guards and accompanied Lord Wolseley's expedition for the relief of General Gordon at Khartoum. On his return he worked for a time in Lincolnshire, but later moved to Hemel Hempstead, where he was appointed surgeon to the West Herts Hospital and practised surgery for 25 years. Always interested in local affairs, he was a member of the Hertfordshire County Council and held the office of mayor of Hemel Hempstead, of which borough Astley Cooper, a descendant of the eminent surgeon, had not long before been the first mayor. He took a leading part in politics, was chairman of the local Conservative Association, and was chosen as a candidate for Parliament. At the beginning of the late war he joined the Royal Army Medical Corps and was engaged on home service at different stations until 1919, when he retired to Richmond. In retirement he enjoyed gardening, golf, tennis, and other sports, of which, as of shooting, he was very fond. He was also very active in local church affairs and was a keen Freemason. As a striking example of his genius for friendship it may be mentioned that for 42 years he dined, together with friends made during student days, on May 27th each year.

Dr. Thompson leaves a widow and two sons, his second son having died in 1918.

WALTER CHARLES ORAM, M.D. DUB.

Dr. W. C. Oram, who died on Nov. 28th after a comparatively short illness, was born at Windsor, Nova Scotia, in 1875, and was the son of Mr. John Earle Oram, Professor of Experimental Science at King's College in that province. Educated in Dublin, first at the High School and afterwards at Trinity College, he early showed scientific ability inherited

from his father, and distinguished himself in physics and chemistry. Qualifying in 1900, he spent some time in the study of public health, but a natural bent towards physical investigation soon afterwards led to his taking up radiological work. In 1904 he went to Liverpool as assistant to the late Dr. Stopford Taylor, and took charge of the electrical department of the Skin Hospital in Pembroke-place. It was not long, however, before other and more important appointments came his way, and ultimately he became honorary radiographer to the David Lewis Northern Hospital, the Liverpool Stanley Hospital, St. Paul's Eye Hospital, and the Southport Infirmary. All this involved a great deal of work, to which he devoted himself until a week before his death. During the war Dr. Oram was on the staff of the Western General Hospital, and for a time was attached to the 57th General Hospital of the British Expeditionary Force. Apart from radiology, he was much interested in diseases of the skin. The scientific papers which he wrote were not very numerous, but were remarkable for their lucidity, and showed wide comprehension of the subjects with which he dealt. He was an accomplished and ingenious practitioner, many of the devices which he employed being of his own invention. In person he was courteous and sympathetic, and the profession in Liverpool held him in considerable esteem.

Dr. Oram married a daughter of Mr. J. W. Bright, and she survives him with one daughter.

THE LATE MR. ANGLIN WHITELOCKE.

Prof. Grey Turner writes: I would like to add a few personal notes to your admirable obituary notice of Anglin Whitelocke, whom I first met at the annual meeting of the British Medical Association held in Oxford in 1904. He was the local vice-president of the Surgical Section and as a member of the executive and other committees worked hard to make the meeting the success which all present remember. During that week the Whitelockes kept open house and seemed greatly to enjoy dispensing hospitality. We next met in Paris in 1911 at one of the early meetings of the Provincial Surgical Club, as it then was, and regularly afterwards on visits to continental clinics or to surgical centres at home. On these occasions he proved a most charming and delightful companion, always ready to enliven the long journeys by his conversational powers and to add the results of his wide experience to the general store. He loved to speak of the time when he acted as house surgeon to Sir William Macewen, an experience of which he was ever proud, and his "chief" of those days remained his hero to the end. The spring meeting of the club, in 1914, was held in Oxford, and Whitelocke on that occasion carried out a whole series of operations, and I especially remember his rapidity, quickness of decision, long incisions, and the way he unhesitatingly explored the knee-joint with the finger. There were also demonstrations of cases at the hospital, but he saw to it that the strictly scientific side was not neglected, and in the afternoon after the whole club had been entertained to tea at his house, he arranged with a colleague—it was Dr. Gunn—to give us apt laboratory demonstrations on the action of drugs on living muscle. Osler and Whitelocke were firm friends and the Regius professor of medicine gave us a delightful talk at the Bodleian on the history of surgery as illustrated by the books in that famous collection. None present is likely to have forgotten the evening when we dined together in Hall at Lincoln, of which college Whitelocke was an honorary graduate. The master, Dr. Merry, presided over the happiest of gatherings, and on looking back it is sad to realise how many of those present have since joined the majority.

After the war our peripatetic surgical society renewed its wanderings, and no one was more welcome than Whitelocke, who was as charming as ever, but it was noted that he lacked something of the old buoyancy. In the spring of 1927 ill-health prevented him from joining the tour of the club to Spain. This was a bitter disappointment to him and to us all but he came to Victoria station to see us off and wish us a good journey. Those of us who saw him then cannot feel surprised that it was for the last time Whitelocke can ill be spared and will be greatly missed by hosts of friends.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Comdr. C. A. G. Phipps is placed on the Retd. List with the rank of Surg. Capt.

Surg. Lt.-Comdrs. L. W. Gemmell and R. P. Ninnis to be Surg. Comdrs.

Surg. Lieut. (D) T. E. Brevetor to be Surg. Lt.-Comdr.

ROYAL NAVAL VOLUNTEER RESERVE.

Surg. Lt. J. E. Purves to be Surg. Lt.-Comdr.

Proby. Surg. Sub-Lts. J. O. Clyde and H. S. Waters to be Surg. Sub-Lts.

ROYAL ARMY MEDICAL CORPS.

Lt.-Col. and Bt. Col. W. Riach retires on retd. pay on account of ill-health, and is granted the rank of Col.

Maj. H. C. Winckworth to be Lt.-Col.

ARMY DENTAL CORPS.

Lt. R. A. Roth to be Capt.

ARMY RESERVE OF OFFICERS.

Lt.-Col. A. E. Weld, having attained the age limit of liability to recall, ceases to belong to the Res. of Off.

Maj. W. E. C. Lunn-Barker, R.A.M.C., Reg. Army Res. Off., relinquishes appt. under Art. 507 (*b*), Royal Warrant for Pay and Promotion, 1926, and resumes the rank of Lt.-Col.

TERRITORIAL ARMY.

J. D. Robertson to be Lt.

ROYAL AIR FORCE.

The undermentioned are granted short service commissions in the rank of Flying Officer for three years on the Active List: V. V. Brown, M. Clancy, W. Heron, F. L. Lipscomb, J. F. McGovern, C. P. O'Toole, S. B. S. Smith, G. H. J. Williams, and D. A. Wilson.

The undermentioned are promoted to the rank of Flight Lt.: E. Thompson and E. A. Aslett.

Flight Lt. J. E. Cox relinquishes his temporary commission.

RESERVE OF AIR FORCE OFFICERS.

Flying Officer C. J. MacQuillan is transferred from Class D II. to Class D I.

INDIAN MEDICAL SERVICE.

Capts. G. B. Hanna, Pestonji Rustomji Vakil, and F. M. Kirwan to be Majs.

Lt.-Col. L. T. R. Hutchinson retires.

Lt.-Col. W. M. Anderson, Agency Surg., to be Resident Surg., Hyderabad. Dr. B. G. Kane, Asst. to Civil Surg. Raipur, has been appointed to officiate as Civil Surg. Raipur. Maj. L. H. Khan has been appointed Superintendent, Central Jail, Nagpur. Maj. N. S. Jatar, Superintendent, Central Jail, Nagpur, has been appointed Superintendent, Central Jail, Jabbulpore. Capt. G. W. Cearns Asst. Civil Surg., Allahabad, has been appointed R.M.O. European Civil Hospital, Allahabad. Lt.-Col. F. A. Barker has been appointed Insp. Gen. of Prisons, Punjab. Lt.-Col. J. Frizelie has reverted to military service. Lt.-Col. J. Morison has been appointed Director, Pasteur Institute, Shillong. Maj. H. C. Godding to officiate as Officer Commanding British Military Hospital, Peshawar. Maj. N. D. Puri to officiate as Insp. Gen. of Prisons, Punjab. Capt. A. C. Chatterjee officiating Civil Surg., Serampore, has been appointed to act as Civil Surg. of Burdwan. Lt.-Col. Godson, Civil Surg. Hooghly, has been appointed Civil Surg., Serampore. Lt.-Col. W. D. Speedy has been appointed to the Medical Charge Civil Station, Barrackore. Majs. J. A. Sinton and G. Covell have been appointed Director and Assistant Director respectively of the Central Malarial Organisation. Lt.-Col. H. Thoburn has been appointed Surgeon on the Viceroy's Personal Staff. Maj. St. J. E. Henricks, officiating Civil Surg. Mandla, has been appointed to the executive and Medical Charge, Subsidiary Jail, Mandla. Maj. S. L. Mitra has been appointed to act as Director of Public Health, Patna.

DEATHS IN THE SERVICES.

Inspector-General Hadlow, R.N. (retd.), who died on Nov. 30th at Southsea, aged 91, qualified with the L.S.A. in 1857, and obtained the M.R.C.S. Eng. two years later. He was assistant surgeon on the *Conqueror*, and was present at the attack of the batteries in the Straits of Shimonoseki, Japan, in 1864. He received the Gilbert Blane medal and retired in 1894.

PATHOLOGY AT THE LONDON HOSPITAL.

FACILITIES FOR RESEARCH.

AT the opening of the Bernhard Baron Institute of Pathology at the London Hospital on Tuesday Lord CHUTSFORD said that the work of the medical college could not be separated from that of the hospital. It was a narrow view of things that limited the work of the hospital to the cure of the patient only; we must care for the future sick, learn by experience, and search for remedies against diseases at present incurable.

Sir HUMPHRY ROLLESTON pointed out that the great services unobtrusively rendered by a pathological institute were to help the patients by routine examinations, to advance knowledge so as to prevent disease, and to educate the future medical men of the country. From the purest charitable motives the public often earmarked donations and subscriptions for the use of hospital and patients only, thus excluding pathological or other departments whose work was essential to efficient treatment. It should be realised that the departments of pathology, bacteriology, and clinical pathology and biochemistry were just as essential to a modern hospital as were the radiological department, the operating theatres, and the wards; it was, in fact, rather strange that radiology, which was much younger in years than pathology and considerably the junior of bacteriology, was in general regarded as much more closely related to ordinary clinical practice than its seniors, probably merely because of the position of its work-room—namely, among the out-patient departments. Routine work was not only compatible with, but in an ideal institute was inseparable from research. It was a serious mistake to regard the routine work of a laboratory in the same light as a penny-in-the-slot machine, for though in some cases it may be easy to give a correct opinion, in others it might be very difficult. Not only did the material as collected provide the data for research and analytical conclusion, but out of it there was always something new forthcoming. The importance of enabling research and publication of new information to be made must not be lost sight of in the consideration of the laboratory staff. In addition to the Director, Prof. H. M. Turnbull, there were two assistant directors, Dr. W. W. Woods and Dr. A. B. Hutton, three qualified men as pathological assistants with an honorarium and voluntary assistants. The personnel of a laboratory was even more important than its spaciousness and material equipment, and the London Hospital was extraordinarily fortunate in having the man first, so that he could direct the plans and arrange the splendid new laboratory so generously provided by Mr. Bernhard Baron. The amount of work that had issued from Prof. Turnbull's department during his tenure of office was surprising. Much of his work had been published, but not under his name, for, like the ideal head of a department, he was anxious that his colleagues and pupils should have every facility and encouragement to make use of his store of accumulated material. How many researches he kept secret from the public eye as a result of a severely auto-critical attitude was unknown, and probably only those working in close collaboration with him and cognisant of his teaching had any approach to an accurate knowledge of his unpublished work.

Sir Humphry Rolleston concluded by referring to the great traditions of the London Hospital and to the torch of pathological learning handed on from H. G. Sutton and F. Charlewood Turner and still burning brightly.

THE BERNHARD BARON INSTITUTE OF PATHOLOGY.

Prof. H. M. TURNBULL, in proposing a vote of thanks to Sir Humphry Rolleston, expressed his great pleasure that the Regius Professor of Physic at Cambridge should have opened the Institute. The Chairman of the hospital and the House Committee had done everything in their power to help him in organising the department, but in his early days there had been a great lack of material for pathological investigation. A pathological department should be so endowed that it could continue its work independently of the fluctuation of annual subscriptions, and with a further endowment of £100,000 he believed this object could be attained at the London Hospital.

Dr. ROBERT HUTCHISON seconded the vote of thanks and Mr. Bernhard Baron expressed the hope that he would live to see the Institute bear fruit. The proceedings then terminated.

The Institute, which is an expansion of the Andrew Clark Institute of Pathology opened by Sir Henry Roscoe and Lord Lister in 1907, has been named after Mr. Bernhard Baron in recognition of a gift of £10,000 for building and of £25,000 for permanent endowment. This endowment is supplemented by a sum of £5000 from the Rockefeller Foundation. The following is a description of the laboratories:—

The ground floor is occupied by freezing chambers for the storage of bodies, a mortuary chapel, and a waiting-room for friends; the latter two rooms have a separate entrance from outside. The post-mortem theatre is a separate building on this floor; the sides and roof are of glass and the roof is fitted with ventilators which draw up and burn the vitiated air. The first floor contains 12 rooms; a large room for the investigation of tissues removed at operations, rooms for the director, assistant directors, pathological

assistants, and technicians, research rooms, a room for the clerk and the records, and a room for washing glass-ware. In one of the larger of these rooms the cabinets containing microscopic slides will be stored. On the second floor is a large lecture and class-room to accommodate 50 students. Behind this is a room for storing specimens reserved for lectures, demonstrations or further examination, and a curator's room in which such specimens can be prepared. Two rooms which lie immediately beneath the animal houses have been specially fitted for animal experiment, but can also be used for other research. In another room students can work in their spare time. This floor also has a room for washing glass-ware. On the third floor are placed three animal houses and a fodder room.

The lecture and class-room is fitted for practical work. It has on three sides large windows with lights that swing on pivots so that they may easily be cleaned, and a "factory roof" with north lights; all the lights are fitted with blinds so that the room may be completely darkened when an epidiascope is used. The room for reserved specimens is fitted with iron racks to carry tanks, whilst the whole of the space beneath small windows in one long wall is occupied by a cupboard for small jars and by shelves for larger vessels. This room has a skylight and a tiled floor. The clerk's room will be fitted with a large fire-proof cupboard for the records and cupboards for storing the indices and copies of reports.

The animal houses have asphalt floors provided with gullies, and the cages are carried on cantilever slides. All the other rooms are furnished with benches, fitted with drawers, for practical work, slate slabs for paraffin ovens and incubators, gas points, electric points for lighting and for power, sinks, cupboards, and, usually, wash-hand basins. All the rooms except the animal houses and the room for reserved specimens have rubber flooring. The building is warmed by hot-water radiators, and those in the animal houses are arranged to give specially required temperatures.

Mr. J. G. Oatley, F.R.I.B.A., is the architect.

REMOVAL OF BETHLEM HOSPITAL.—Formal notice has now been given that application will be made to the next session of Parliament for an Act empowering the governors to sell, lease, or otherwise dispose of portions of the Monks Orchard Estate which has been acquired for the erection of the new Bethlem Hospital. The notice is published in the *London Gazette* as from "the Mayor and Commonalty and Citizens of the City of London, Masters, Guardians and Governors of the House and Hospital called Bethlem situate without and near to Bishopsgate of the City of London"—that having been the site of the original hospital.

VITAL STATISTICS OF THE IRISH FREE STATE.—The annual report for 1926 of the Registrar-General of the Irish Free State was issued recently. The total number of births registered was 61,176, being 893 less than in 1925; and the total number of deaths was 41,740, being 1910 less than in 1925. Tuberculosis caused 4362 deaths, the lowest ever recorded in the Free State, while the deaths from cancer (3021) show an increase of 118 over the highest annual number ever previously recorded—viz., 2903 in 1924. Of the 61,176 births registered, 59,460 (97·2 per cent.) were legitimate, and 1716 (2·8 per cent.) illegitimate. The mortality from all causes in 1926 was 0·57 per 1000 below that for 1925, and 1·58 per 1000 below the average for the ten years, 1916–25. In urban areas the mortality was 15·52 per 1000 and in rural districts 13·44 per 1000. Infant mortality in 1926 was 74 per 1000 births, which was 6 per 1000 above the rate for 1925—viz., 68 per 1000. The rate for rural areas was 56 per 1000, and for urban areas 110 per 1000 births. The deaths from measles number 519, 321 above the number recorded in 1925, and 267 above the average for the ten years, 1916–25. Of the 41,740 deaths at all ages, 6781, or 16·2 per cent., were deaths of children under 5 years, including 3676 deaths of males, or 17·6 per cent., of the male mortality at all ages, and 3105 deaths of females, or 14·9 per cent. of the total deaths of females. Deaths of persons aged 95 years or upwards numbered 287, and they include 49 whose ages at death were returned as 100 years or upwards. Of the 41,740 deaths, 14,343, or 34·8 per cent., of the total deaths were 70 years of age or over. Deaths caused by violence in 1926 numbered 889 (0·30 per 1000), 73 more than recorded for 1925. Of the 889 deaths, 87 were classed as suicide, 44 to homicide, one to execution, leaving 747 to other deaths by violence, the majority of which were definitely stated to have been accidental. The number of emigrants from the Free State to "places outside of Europe and not within the Mediterranean Sea" during 1926 was 30,359 (as compared with 30,302 in 1925), and the number of immigrants was 1983, resulting in a net migration of 28,376 persons from the Free State in 1926.

Correspondence.

"Audi alteram partem."

CATARACT EXTRACTION WITH PERIPHERAL IRIDECTOMY.

To the Editor of THE LANCET.

SIR,—Of the operation described by Dr. J. T Tennent in your issue of Dec. 3rd, I have had many years' experience. It is the one which, in my opinion gives the best results. That some of my colleagues at Moorfields share this opinion is shown by the fact that this particular operation was performed 84 times at that hospital during the seven years 1919–25 inclusive. While in complete accordance with Dr. Tennent's statement that *the* most important advantage of peripheral over complete iridectomy is that the former prevents inclusion of lens capsule in the wound, I do not agree with him as to the contra-indications. No intraocular operation of any kind should be undertaken unless all risk of infection from conjunctival or lacrymal sac infection has been removed, while excess of cortical matter can in most cases be got rid of by washing out the anterior chamber. Again, loss of vitreous after removal of the lens, in consequence of the performance of a peripheral iridectomy, is an accident which I have never known to occur.

The conditions in which a complete iridectomy is preferable to a peripheral are, in my opinion, three in number—viz.: (1) the presence of posterior synechiæ; (2) when the pupil is so rigid that expression of the nucleus through the intact sphincter cannot be done without the employment of undue force; and (3) when the iris, after having been replaced, will not remain in position; this is usually caused by a tendency to bulge on the part of the vitreous. The accidental inclusion in the wound of a small mass of uveal pigment from the posterior surface of the iris has, in my experience, never caused the slightest trouble, provided that the iris itself has remained entirely free.

There are, of course, many practical points of importance in the technique of the operation.

I am, Sir, yours faithfully,

R. AFFLECK GREEVES.

Wimpole-street, W., Dec. 6th, 1927.

THE NUTRITIVE VALUE OF BREAD.

To the Editor of THE LANCET.

SIR,—The contribution to our knowledge of the all-important subject made by Dr. Cramer and Dr. Mottram is extremely valuable. It will, however, fail in its purpose if attention is to be centred on any proprietary article rather than on the all-round improvement in the quality of bread as ordinarily supplied. "Hovis" is undoubtedly very superior in nutritive quality to white bread made from "patent" flours. But it is, after all, a case of "robbing Peter to pay Paul." The germ which enriches "Hovis" to an unnecessary extent could be made better use of if it was distributed throughout the nation's bread. There is not enough bread to go round if all bread was made to contain 25 per cent. of germ—nor is it necessary that it should. During the milling process various "streams" of products are obtained containing varying proportions of the different parts of the grain. It is only necessary to combine these various products in order to build up a flour which will contain a due proportion of all the constituents of the grain. Such combinations could be made to suit all tastes and requirements, and yet be infinitely superior to the "patents" now so generally used despite their poverty in vitamins and mineral salts. These reconstituted flours might be almost white in colour and be perfectly adaptable to ordinary methods of baking.

This would appear to be the solution of many,

ot all, of the difficulties which stand at the present
the way of the general bread reform.

I am, Sir, yours faithfully,
S. HENNING BELFRAGE.

Gloucester-place, W., Dec. 5th, 1927.

To the Editor of THE LANCET.

SIR,—The letters of Prof. V. H. Mottram and
iss G. Hartwell in THE LANCET of Nov. 26th may be
nswered together. In our recent paper we said that
rof. Mottram had made public the erroneous state-
ent that white bread contains an abundant supply
vitamin B, and is not greatly inferior in this respect
wholemeal bread or germ bread. Prof. Mottram
nies having said this, and hopes that our scientific
curacy is greater than our controversial. We there-
re quote the manifesto signed by him, Miss Hart-
ell, and others which appeared in THE LANCET of
ly 23rd, 1927 :—

"While we admit that vitamin B, which is essential to
alth, is present in wholemeal flour and practically absent
om white flour, we do not subscribe to the statement that
is not contained in white bread and that the use of white
ead denies the human system the necessary amount of
is vitamin."

"The fact is that any lack of vitamin B in white flour is
finitely remedied when the flour is made into bread by
e addition of yeast, which contains plenty of it."

We also said that the experiments of Miss Hartwell
which Prof. Mottram's statements appear to be
sed were faulty because the vitamin-B content of
r diet was due to the butter which she included in
r diet, and not to the white bread, and because
proper control experiments were carried out
nich would have demonstrated this fallacy. Miss
artwell states in her letter that controls were made
d that we overlooked that part of her paper. We
d not overlook any part of her paper. If the reader
ll refer to her paper he will find that the butter
ed by her was not tested for the absence of vitamin
which Miss Hartwell merely presumes. The
ader will find, moreover, that rats fed on this butter
d white bread made with baking powder instead
yeast increased in weight progressively during
weeks from 40 to 100 grammes. This diet must
erefore have contained considerable amounts of
amin B. Since this vitamin is absent from white
ur—as the manifesto correctly states—and from
king powder, the source of vitamin B in this experi-
nt must have been the butter. This fallacy
iates all her results. With proper control experi-
nts it can be shown conclusively that rats cannot
e on a diet in which white bread is the only source
vitamin B.—We are, Sir, yours faithfully,

W. CRAMER,
J. C. MOTTRAM.

mperial Cancer Research Fund, Radium Institute,
Dec. 5th, 1927.

CRIMINAL LAW AND INSANITY.

To the Editor of THE LANCET.

SIR,—A consideration of Lord Hewart's David
oyd Roberts lecture leads me to ask for space to
cline the following points. I assume that the two
igatory conditions of the McNaghten judgment
ve been fulfilled. The third condition laid down
this judgment is an alternative one—namely, that
a defect of reason brought about by a disease of
mind must prevent the accused from knowing
nature and quality of his act, or prevent him from
owing that what he was doing was wrong.

Taking the first alternative I further assume that
accused knows the *nature* of his act—e.g., the
ughter of a human being other than himself.
hat meaning does the word *quality* bear? Can a
son be said to know the quality of his act if he is
ware of its probable consequences to himself?
not, what is the minimum length of time for which
s unawareness must exist to constitute legal
anity; does the law insist that such ignorance
st exist before, during, and after the commission
of the act, and, if so, for how long? If it does not so insist or fail to fix the duration, it appears to me that to be unaware of the quality of an act in the sense of a failure to realise the consequences to himself for a period only covered by the time necessary to commit the act brings an uncontrollable impulse within the bounds of the McNaghten judgment. For the words are "nature *and* quality," not "*or* quality."

Taking the second alternative, is the word *wrong* to be construed as illegal or wrong according to the ethical and/or moral standards or standard of the insane person? Such a person may commit an act which he regards as righteous while at the same time taking precautions to avoid the legal consequences of discovery. It may be that these points have been already dealt with; if not, I think they may help to clear up the differences between the medical and legal view of insanity.

It is perhaps not generally known outside the medical profession that many insane minds reason in a manner even more appallingly logical than that of an eminent lawyer. Their acts, however horrible, are the reasoned consequences of mistaken ideas. Lord Hewart says that the fact that a man thinks he is John the Baptist does not entitle that man to shoot his mother. If a man who thought himself John the Baptist did shoot his mother I think it would be found that he did so because he was firmly convinced she was Salome.

I am, Sir, yours faithfully,
GORDON WILSON, M.B.

Thurlstone, near Sheffield, Dec. 4th, 1927.

ORGANIC HYPNOTICS.

To the Editor of THE LANCET.

SIR,—I am very glad that Sir William Willcox has again warned medical practitioners against the careless use of barbituric acid derivatives. They are extremely helpful preparations in the treatment of patients suffering from the sleeplessness, irritability, and mental unrest so commonly associated with the psychoneuroses and allied conditions, but extensive experience of their effects confirms my belief that the administration of medinal, veronal, dial, and the rest should be much more closely controlled than I find to be customary.

A patient who took sufficient barbitone to make him sleep for 72 hours told me he had never any difficulty in obtaining as much as he wanted on an old prescription; this large dose was said to be an accident, but as not long after he was decapitated on a railway line I have found it difficult to accept that view. Again, within the last few months dial was suggested as a simple and reliable hypnotic by a doctor visiting a patient of mine in a non-professional capacity. Of course he could not know that this patient had myocardial weakness and attacks of alcoholic nephritis, nor that in the same house was a mentally unstable individual always on the look out for new drugs. However, within a few days the latter so successfully doped himself with dial that urgent stimulant treatment was required to bring him round from a state of profound coma which for a time seemed likely to be fatal.

Drugs that are prescribed without restriction and easily purchased are not regarded by patients as "dangerous"; unless a prescription is written with carefully detailed directions and marked "not to be repeated" they often see no reason why they should not use barbitone-compound tablets as readily and safely as they use aspirin or soda-mint tablets. After all, it is a tablet age, and every household has its favourite cachets and tablets for ready use; but in my opinion it is time we seriously regarded Sir William Willcox's warning and made a rule never to give "open" prescriptions for barbituric acid hypnotics, nor to put patients in possession of more than three or four tablets at a time.

I am, Sir, yours faithfully,
E. L. HOPEWELL-ASH, M.D.

Grosvenor-street, W., Dec. 5th, 1927.

THE WEIGHT OF THE BRAIN OF ANATOLE FRANCE.

To the Editor of THE LANCET.

SIR,—For a century past great importance has been attached to the brains of eminent men, the weight of which is presumed to be above the average—i.e., above 1360 g. or 49 oz. for men (and 44 oz. for women). The most recent weight taken is that of Anatole France, the celebrated French author, by Dr. Guillaume Louis and Dr. Dubreuil Chambardel, who read a paper on the subject at the Academy of Medicine in Paris on Nov. 8th last year. They reported that they found that the weight of the brain of Anatole France was 1017 g. only—i.e., 343 g. less than that of an average male citizen and less than the weight of the brain of an ordinary woman.

The small weight of the brain may, of course, be due to the age of Anatole France, who died three years ago, when he was 80½ years old. But Dr. Louis and Dr. Chambardel held that it was probably due to the nature of the fluid used for embalming the body, for they had performed an experimental test, which revealed that brains soaked in this fluid lost 10 g. in a day. They drew attention to the fact that Gambetta's brain, hitherto regarded as the lightest on record, was similarly prepared by Duval, and weighed 12 hours after embalming 1160 g. and a few hours later 1090 g., but must actually have weighed 1246 g.

Now it appears to me, quite apart from this report, that anatomists still do not know what to look for. That the intellect can have little, if any, reference to brain weight was argued already by Gratiolet, who was no mean authority on this subject. How unreliable—without the fullest details—these brain weights are, is shown by the careful weight taken of the brain of Helmholtz, distinguished for his wonderful researches in optics (*Zeitschrift für Psychiatrie*, 1899). The weight of his brain, including the blood coagulum, was 1700 g. This being removed, the brain weighed 1540 g., but so much blood remained that it was estimated that 100–120 g. should be deducted. This would reduce the brain weight to 1420–1440 g. Helmholtz had therefore a brain not much above the average weight; but how do we know that in the cases of the very heavy brain weights recorded, as those of Cuvier and Byron, allowance was made for the quantity of blood, as was made in the case of Helmholtz.

Lord Byron died in Greece in 1824, and English papers reported his brain weight as six medicinal pounds, a round figure which renders it suspect of being inaccurate. In any case it was probably a Neapolitan or Venetian weight, the former 1924 g., the latter 1807 g., and it was stated that Byron's brain was in a hyperæmic condition, so that probably no allowance was made for the blood which the brain contained. The brain of Cuvier, the famous naturalist and anatomist, remained for a long time the heaviest brain recorded of distinguished men. The weight was stated by Wagner as 1861 g., but this Broca corrected to 1829·96 g. Even thus reduced it exceeds the limits of the normal human brain by nearly one-third. To Spitzka, an eminent American neurologist, the explanation of Cuvier's heavy brain was very simple; it represented not intellect, but healed-up hydrocephalus.

Sir Walter Scott's portraits show an astoundingly large head, especially in height. It is on record that the cranial arch from ear to ear, measured from the mastoid process, was 19 in., whereas the average is only 14·6. The circumference of his head was 23·1 in., the longitudinal diameter 9 in., and the parietal 6·4 in. Yet in the report of the post-mortem examination of Scott the physicians stated that "the brain was not large." The peculiar shape of his skull was attributed to his lameness dating from infancy—another healed-up hydrocephalus. But if, as his physicians supposed, "the sagittal suture closed prematurely," his skull could never have grown to the enormous height we see in his portraits and busts.

Quality of the brain, number, and depth of the convolutions do not account for the differences in brain weights, for we are dealing exclusively with men who have achieved eminence. Nor can they be du wholly to differences in the bulk of the body, for, a Sir William Turner has pointed out: "The huma brain, in all probability, attains its full size and weigh at or about the age of 30, whilst the body not onl increases in weight after this period, but in one an the same individual may vary considerably in weigh at different stages of adult life, without any corre sponding fluctuations taking place in the weight the brain."

Size and weight of the brain can only indicat mental power, but does not tell us whether tha power lies in extent of intellect, in strength of mor feeling, or in power of passion or affection. Th evidence of comparative anatomy must not be ove looked, that we have some parts of the brain common with animals, to administer to our anim wants, and that only those parts which are characte istically human can have any relation to the high intellectual processes and moral qualities for whic man is distinguished—namely, the frontal lobes. is their size and complexity which must be estimate in judging of the superiority of a particular brai This is the view of many distinguished authorities Sherrington, Bolton, Ferrier, Bianchi, and others—b has not yet been sufficiently realised.

We have learned a great deal during the progre of the last 50 years of the brain as an organ of sensatio and motion. What is needed now is research int the mental functions of the brain, to account for th numerous specific intellectual and other abilities man. Brodmann and Elliot Smith have discover about 27 structurally differentiated areas in th cerebral cortex, but we are still ignorant of the functions. If mental manifestation is dependent brain structure and activity, it is time we learn something more about it than we know at present.

I am, Sir, yours faithfully,

BERNARD HOLLANDER.

Wimpole-street, W., Nov. 29th, 1927.

SURVIVAL AFTER OPERATION FOR BREAST CANCER.

To the Editor of THE LANCET.

SIR,—Your report last week of the discussion the Medical Society of London on Nov. 28th on series of cases of long survival after the operatio for breast cancer, contains one important, if obviou error. I am made to say that the method of routi use of radium at the time of the primary operatio which I have practised for the last seven years, h improved my private results by 90 per cent. Wh I actually said was that it had diminished my pe centage of recurrences by 9 per cent., an importa but not a sensational gain. At Montreal last year gave fuller details of my results in a paper read befo the American College of Surgeons. This paper w appear in an early number of *Surgery, Gynecology a Obstetrics*.—I am, Sir, yours faithfully,

W. SAMPSON HANDLEY.

Harley-street, W., Dec. 6th, 1927.

To the Editor of THE LANCET.

SIR,—In your report of the discussion on late resul of operation for carcinoma of the breast at the Medic Society of London, Mr. A. J. Walton is said to ha suggested that "those who spoke hopefully of the cases would be more pessimistic if they had a go follow-up agency at work." Of course, caref surgeons in discussing their results have always tak account of the factor of uncertainty introduced the existence in their records of cases untraced, a actually there are published series where the propo tion untraced was small. In the Leeds data discuss in Report No. 34 of the Ministry of Health's Ser less than 5 per cent. of the 357 patients were untrace The optimistic conclusion reached by Dr. Lar Claypon depends in no way upon neglect of elementary precaution and the results she reach are, within the necessarily wide limits set by ordina

rors of sampling, indisputable. We can take it as certained that of the Class 1 cases (the disease rtainly malignant but entirely confined to the east) almost certainly more than 50 per cent. of e patients and probably more than 60 per cent. ll be alive ten years after operation. We may so take it that of patients operated upon in an average" condition the percentage of survivors ay be as small as 15 per cent., and is not likely to ceed greatly 24 per cent. (a result in reasonable reement with the 13 per cent. reported in the scussion by Mr. Jocelyn Swan, which may perhaps too pessimistic if, in his series, there were any nsible proportion of untraced patients).

Mr. Zachary Cope "raised the question of how many ses would have survived without operation." This estion has been raised before by several investitors and a summary of their results is contained in eport No. 33 of the Ministry of Health's Series. he answer to Mr. Cope's question is that on the erage not more than 12 per cent. of untreated tients are likely to survive so long as *six* years m the date of first recorded symptoms (of course, date anterior to that of possible operation), and most half will be dead within two years.

For reasons set out at length in the report entioned above, I believe that the word "cure," ing ambiguous and hard to define, should not be ed and that we should try to think in terms of ars of life saved. If we do so, I am sure we shall t only agree with the optimistic surgeons but shall d it very hard to escape the conclusion that those o are pessimistic have not discovered some fallacy dden from their colleagues but are merely familiar with the literature of the subject.

I am, Sir, yours faithfully,

Dec. 6th, 1927. MAJOR GREENWOOD.

MERCUROCHROME INTRAVENOUSLY.

To the Editor of THE LANCET.

SIR,—Anyone who has studied the literature on is matter will have been struck with the variation dose and dilutions employed. A word of caution desirable, particularly to those relatively inexpericed in the administration of this organic mercurial. A pharmacologist, to whom I forwarded supplies experiments on animals, sent me the astonishing port that a certain proportion of deaths might llow the injection of 8–15 c.cm. of a 1 per cent. lution (i.e., 0·08 to 0·15 g.) in man. On pointing t to him that a dosage of this kind has been used nically in many cases he modified his opinion to e extent of admitting that there is an enormous riation in the tolerated dose of any drug in animals. imal experiments are of great help, but clinical perience is clearly more valuable. I see the new d non-official remedies says that 10 mg. per kilo variably kills rabbits, yet the dose of 5 mg. per kilo e., 0·3 g. for a 10-stone man) is mentioned in that ork. I have information of the repeated clinical e of 0·1 increasing to 0·2 g. of the compound in this untry, injections in some instances having been ven every day, without any untoward result except mild stomatitis. And, on the other hand, I have formation that 0·1 g., both in 1 and 0·5 per cent. lution, was not tolerated, intense diarrhœa being used.

My own view is that the recommendation of L. S. idgeon (THE LANCET, 1926, i., 172) of 10 c.cm. of 1 in 200 solution as the maximum that should be ven, is a safe one to go upon, reserving bolder sage—e.g., that of Andrew Balfour (*Brit. Med. Jour.*, 25, ii., 1081) (20 c.cm. of a 1 per cent. solution), for ch grave infections as plague.

It would be a great help if those who have had ther experience with mercurochrome intravenously uld communicate it, in order that the dosage and gree of dilution may be determined.

I am, Sir, yours faithfully,

W. H. MARTINDALE.

New Cavendish-street, W., Dec. 6th, 1927.

Medical News.

UNIVERSITY OF DUBLIN: SCHOOL OF PHYSIC, TRINITY COLLEGE.—At the recent examinations the following candidates were successful:—

MASTER IN SURGERY.

Bernard Gluck.

FINAL MEDICAL EXAMINATION.

Part II., Medicine.—A. R. Ewart, J. E. Wells, Kenneth Watson, E. M. Gamble, J. R. Hanna, G. H. Henry, J. H. Stephens, L. R. Brumberg, Wilfreda D. C. T. Piggott, H. S. North, and Christina M'Donald.

Surgery.—*R. R. Woods, J. K. Harper, George M'Donald, G. M. Smith, Ethel M. Weir, J. H. Stephens, G. H. Henry, A. R. Ewart, Isidore Isaacson, R. M. Moore, C. E. G. Nunns, Izaak le Roux, and C. P. Wallace.

Midwifery.—*A. A. Morgan, *H. R. F. Tweedy, R. I. G. Reid, Marie M. E. Lea-Wilson, H. J. Robinson, J. K. Harper, H. E. Knott, F. G. Stewart, C. R. Harris, Julius Horwich, R. F. W. K. Allen, William Crawford, G. W. F. Pratt, D. F. Walsh, A. C. G. Ffolliott, F. O. W. A. Mahon-Daly, Julius Sayers, H. S. Smithwick, Nora A. Stack, E. S. Adderley, J. E. Wells, E. C. Hicks, and G. Q. Chance.

* Passed on high marks.

FINAL DENTAL EXAMINATION.

R. W. Mather and G. M. Titterington.

DIPLOMA IN GYNÆCOLOGY AND OBSTETRICS.

Ann Macleod.

UNIVERSITY OF CAMBRIDGE.—By the death of the widow of the Rev. John Henry Ellis, who died in 1912, the University has become entitled to a bequest of approximately £65,000, which can be used for general purposes.

UNIVERSITY OF LIVERPOOL.—The late Emeritus Professor W. Thelwall Thomas has left £5000 to the University of Liverpool to endow a Fellowship in Surgical Pathology.

UNIVERSITY OF DURHAM.—The Chancellor of the University of Durham, the Earl of Durham, has appointed Sir Thomas Oliver, M.D., F.R.C.P., President of the College of Medicine, Newcastle-on-Tyne, to be Vice-Chancellor of the University.

UNIVERSITY OF EGYPT.—Mr. P. C. Raiment, M.R.C.S. Eng., has been appointed to the chair of physiology in the State University of Egypt at Cairo. Dr. Raiment, who took first-class honours in the natural science schools at Oxford, has been for the last six years university demonstrator in biochemistry at Oxford. He will leave at the end of this year.

BRITISH INSTITUTE OF PHILOSOPHICAL STUDIES.—A meeting will be held at the Royal Society of Arts, 18, John-street, Adelphi, London, W.C. 2, on Tuesday, Dec. 13th, at 8.15 P.M., when Prof. T. P. Nunn will lecture on Anthropomorphism in Science.

CONFERENCE ON ACTINOTHERAPY.—An international exhibition and conference organised by the *British Journal of Actinotherapy* will be held at the Central Hall, Westminster, from Tuesday, Dec. 13th, to the following Friday. Particulars may be found in THE LANCET, Dec. 3rd (p. 1196), and invitation tickets can be obtained from the office of the journal at 17, Featherstone-buildings, London, W.C. 1.

HOSPITAL ADMINISTRATION.—A three months' course of lectures and demonstrations on clinical practice and in hospital administration will be given at the North-Eastern Hospital, St. Ann's-road, London, N. 15, by Dr. F. H. Thomson, the medical superintendent, on Mondays and Wednesdays at 4.45 P.M., and alternate Saturdays at 11 A.M., beginning on Wednesday, Jan. 4th, 1928. Particulars may be had from the clerk to the Metropolitan Asylums Board, Victoria Embankment, E.C. 4.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—On Monday, Dec. 12th, at 5 P.M., at the rooms of the Medical Society of London, 11, Chandos-street, Cavendish-square, W., Mr. Ernest Clarke will give a lecture entitled Practical Hints in the Correction of Errors of Accommodation and Refraction of the Eye. This lecture is free to members of the medical profession. In January courses will be held in medicine, surgery, and the specialties at the Prince of Wales's General Hospital; in cardiology at the National Hospital for Diseases of the Heart (limited to 20); in diseases of children at the Children's Clinic; and in psychological medicine at the Bethlem Royal Hospital. Information, syllabuses of special and general courses, and tickets may be had from the Secretary of the Fellowship, 1, Wimpole-street, London, W. 1.

CANCER HOSPITAL.—The committee of the Cancer Hospital in the Fulham-road is appealing for money for extensions, the first part of which will be wards for "middle-income" patients who can contribute to their upkeep.

NOTTINGHAM GENERAL HOSPITAL.—At the 145th anniversary meeting of the governors it was stated that one-half of the population of the city and county subscribes in some way or other to the funds of the hospital.

BUXTON COTTAGE HOSPITAL.—The Duke of Devonshire has given the necessary land for the extension of the Buxton and District Cottage Hospital. The new wing, with day wards for children and provision for sunlight treatment, will cost about £6000.

LONDON SCHOOL OF MEDICINE FOR WOMEN: ANNUAL DINNER.—The annual dinner of the London (Royal Free Hospital) School of Medicine for Women was held on Thursday, Dec. 1st, at the Savoy Hotel, Dr. A. G. Phear, the senior physician to the hospital, presiding over a large gathering, 414 diners being present. As the annual function was originated by Dr. Phear the fine attendance was fitting. Dr. Phear, in giving the Royal toasts, reminded the audience of the recent honour done to the hospital by the Queen, who opened the new children's ward.

The toast of Prosperity to the School and Hospital was proposed by Sir William Beveridge, Vice-Chancellor of the University of London and Director of the London School of Economics, who said that, apart from the drawback of having to make an after-dinner speech, he was delighted to address such an audience as was present. He would confine his remarks to the relations which the school bore to the University of London, leaving the details of progress in hospital and school to be stated in the reply from the chairman. The school, which had been and was splendidly successful, formed, he said, an integral part, more than any other of the medical schools of the metropolis, of the University of London, which was the largest University in the Kingdom and the first to recognise in any full way the claims of women upon university teaching. He considered that the acquisition of the Bloomsbury site was of the highest importance for the life of the University, and he hoped that, when that site was properly defined and when suitable buildings were placed upon it, the whole area would be transformed into an academic quarter. London, he pointed out, had a Government quarter in Whitehall and a commercial quarter in the City of London and the docks; Bloomsbury with its fitting university buildings would form an academic quarter. And of those buildings he hoped that one of the first to be erected would be a great hall of assembly, in which the University could hold its receptions and celebrations and accommodate hospitable gatherings like the present one, while it would be convenient for such recreative purposes as examinations. He wished both the school and the hospital all prosperity.

Dr. Phear, who warned speakers to follow him that the ideal duration of an after-dinner speech was ten minutes, noted the acquisitions during the year to the staff as having been unusually numerous, while in reference to their losses he spoke in warm terms of the great and quiet services which had been rendered by their late chairman, Dr. Alfred Langton. Langton had given of his personal means, seeking neither reward nor recognition, resembling in both respects their late and lamented friend, Dean Aldrich-Blake. With regard to the academic successes of the school he said that they were monotonous and sometimes to himself, as to his colleagues at the hospital, amazing. Considered from the point of view of hospital workers, the students in the school, and their teachers also, appeared to have abundance of time for recreation. He showed, however, that he thought opportunities for recreation should go hand-in-hand with work, for he pointedly referred the question of certain lawn-tennis courts, to be used by the staff of the hospital as well as by the school, to the kind consideration of the chairman of the hospital, Lord Riddell, who was present.

The toast of the numerous guests was proposed by Dr. Gertrude Dearnley, gynæcological surgeon to the hospital, who confessed to an ingenious method of dealing with the difficulty of numbers. She had, she said, drawn the names of the guests from a hat and proposed to deal with them in the order in which those names had emerged so as to avoid invidiousness, for all the guests fell under the one category of being the friends of the Royal Free Hospital and of the school attached. She ran through the list with kindly comment and coupled the toast with the names of Sir StClair Thomson and Lady Greenwood, when both the responses were made on humorous lines.

The health of the chairman was proposed by Dr. Janet Aitken, who mentioned Dr. Phear's support for 25 years of the Choral Society, as one of his many claims to their gratitude. After a brief reply from Dr. Phear the company adjourned to the neighbouring ball-room, where a dance had been arranged. This proved a fitting close to a thoroughly pleasant function.

A LEAGUE OF SUBSCRIBERS.—Since the League Subscribers to Edinburgh Royal Infirmary was started 1919 the total sum obtained by its efforts is £159,0 There are now 1418 contributing groups, 1034 of which in Greater Edinburgh.

AUSTRALIAN AND NEW ZEALAND MEDICAL ASSOCIATION.—The winter dinner of this association in Engl will be held on Dec. 16th, at 8 P.M., at the Trocadero Restaurant, Piccadilly. The High Commissioners for Austr and New Zealand will be the official guests. The hon secretaries are Mr. E. T. C. Milligan and Mr. H. Bed Russell, 86, Harley-street, London, W. 1.

MIDDLESEX HOSPITAL.—The annual report st that there were 5319 admissions in 1926, that the ave stay of patients was 22 days, and that the average per in-patient was £15 15*s.* 9*d.* The new cases treated the out-patient department numbered 45,457, and out-patient attendances were 197,825. The income £82,113, and the expenditure £97,315. The first par the reconstruction scheme has cost over £400,000.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

FUTURE OF VOLUNTARY HOSPITALS: IMPORTANT ANNOUNCEMENT.

ON Thursday, Dec. 1st, in the House of Commons, Roy WILSON asked the Minister of Health whether, in proposals for the reform of the Poor-law and reorganisa of the health services of the country, he contemplated the voluntary hospitals should or would come under control of the State or the local authorities.

Mr. CHAMBERLAIN replied: No, Sir, on the contra regard the preservation of the Voluntary Hospital sys as a matter of essential importance in the health inter of the country. What has been impressed on my m is the absence as a general rule at present of any syste arrangements for coöperation in the various areas of country between the voluntary hospitals and the hosp and institutions carried on by the local authorities have, therefore, suggested that it is advisable that should be consultation in the various areas with a vie arriving at an agreed plan for institutional provision w would enable each kind of hospital to play its proper in meeting the ever-increasing need of the people for pital accommodation. I should anticipate that u such a plan the position of the Voluntary Hospitals w be strengthened and not weakened, but I have never templated putting any compulsion upon them to come an arrangement, their participation in which would matter for their own determination.

Mr. WILSON: In view of the widespread apprehen in the minds of those responsible for voluntary hosp in this country, who hold the impression, rightly or wro that the right hon. gentleman does mean to bring volun hospitals in some way under the local authorities, wil be good enough to give the widest publicity possible to very important statement which he has made in an to my question?—Mr. CHAMBERLAIN: I hope the fact I have made the statement will have the effect of gi wide publicity to it.

Mr. MONTAGUE: Why does the right hon. gentleman that the health interests of the country are bound up the voluntary system?—Mr. CHAMBERLAIN: That is ra a big question to be dealt with by question and answer.

Mr. BARKER: Is the right hon. gentleman aware the voluntary hospital at Blaina is almost closing for of funds, and in these cases in necessitous areas wil Department relieve the hospitals?

Mr. LUNN: Has the right hon. gentleman considered dreadful financial position of voluntary hospitals in parts of the country to-day and the failure of volun hospital boards to extend to meet the requirements of many waiting patients; and will the Government cons giving further funds to the Cave Commission so that can further assist voluntary hospitals in their difficulties

Mr. CHAMBERLAIN: I think a review of the circumsta of voluntary hospitals during the past 12 months will s that they have responded in an astonishing manner to requirements of the country, and while at one time it appear to be impossible for them to meet the need extension, they are, I am very glad to say, now la overcoming that difficulty; and not only have they able to find in most cases sufficient money for the m tenance of the existing beds, but they have even been to make very considerable additions.

MEDICAL PRACTITIONERS' PRIVILEGE.

The text of Dr. GRAHAM LITTLE's Bill to provide that rtain communications between medical practitioners and eir patients shall be privileged from disclosure in evidence, s now been issued. It runs as follows :—

1. Any information obtained by a duly registered medical actitioner from any patient treated for venereal disease ıder a scheme approved in pursuance of Article 11 (2) of e Public Health (Venereal Diseases) Regulations, 1916, R. & O., 1916 (No. 467), shall be regarded as confidential, d shall be privileged from disclosure in a court of law : ovided that the information obtained shall have been tained for the purpose of a cure, or assisting in a cure, of person so treated : And provided also that this privilege all not extend to any communication made with the ject of committing or aiding in committing any fraud or me.

2. For the purpose of this Act " duly registered medical actitioner " shall mean a person whose name is on the Medical Register."

3. This Act shall be called the Medical Practitioners' mmunications Privilege Act, 1927.

The Bill was read a first time on Nov. 22nd.

HOUSE OF LORDS.

MONDAY, DEC. 5TH.

CLEARANCE OF SLUM AREAS.

The Bishop of SOUTHWARK asked His Majesty's Govern- ent when they proposed to introduce legislation to cilitate the clearance of slum areas. He said that it had en understood that the policy of the Ministry of Health d the Government has been first to build new houses and en when sufficient new houses had been built to deal with m areas. They were all bound to acknowledge that so in this policy the Government had been most successful. er a million houses built since the war was an achievement ich did great credit to the Minister of Health and those rking with him, but it was just because so many houses d been built that it was now opportune to ask when steps uld be taken to deal with the slum areas. The slums of e country were so large in extent and so terrible in their nditions that they might very easily prove a real menace the welfare of the nation. The London County Council d schemes relating to 91 acres which would affect 25,000 ople. But quite apart from the people who would be ected by these schemes, it was estimated that there were fewer than 11,500 houses which were insanitary and ntained a population of over 100,000. Some figures could obtained from the annual statistics of the medical officers health. In the borough of Southwark there were 10,000 uses, in the borough of Deptford 4000 houses, in the rough of Battersea 3000 houses, and in the borough of estminster 841 houses, which were not in all respects sonably fit for occupation. A large number of them were sanitary. Out of London in such towns as Bristol, verpool, Glasgow, Nottingham, Bradford, and Leeds the nditions were just as serious. From statements he had ceived from competent observers in his diocese he could e a case of one street of 23 houses in which all the houses re overcrowded. The existence of slums meant that a ry large portion of the population had to grow up under nditions in which health was almost impossible, in which e education of the elementary schools was thrown away, here home-life could not be really experienced, and where aracter as well as physique was almost bound to teriorate. He thought that they were bound to admit that ere were some people who had what was called " the slum nd." They could not wonder at it, when people had en born and brought up in these surroundings. But those o knew the facts best were prepared to testify that these re after all in a small minority. Move people into better roundings, give them a better chance, and almost at once ey would see a change. He admitted that local authorities eady possessed large powers in regard to slum clearances d that in a number of cases they were using their powers mirably. But when they had taken into consideration erything that had been done the fact still remained that e greater part of the slums remained untouched. At the esent rate of progress another generation would grow up d die in the slums, and new slums would have been ated before the old slums had been abolished. Apparently arge number of authorities were taking no steps whatever deal with the slums. He knew that the difficulties in the y of local authorities were great. The cost of slum arance was very great, and the local authorities, which a rule had the greatest problem in this respect were those ich were financially the least able to meet it. It might be cessary to adopt some temporary measure which, while ognising that slum clearance was the ideal solution of e problem, would enable people to live in or near their esent homes under different conditions.

The Bishop of LONDON said he attributed a great deal of social unrest in the country to bad housing conditions. Overcrowding was the parent of disease. He hoped to hear from the Government that they fully realised the appalling nature of the problem and would give all the help they could towards solving it.

Viscount GAGE, Lord-in-Waiting, replying on behalf of the Government, said that although the efforts of the Government and local authorities since the Armistice had been mainly concentrated on the provision of new houses, it must not be thought that the clearance of slum areas had been entirely neglected. In fact the progress made, having regard to the difficult circumstances, could be described as encouraging. Since the Armistice 105 schemes had been confirmed by the Minister of Health and others were under consideration. In the 24 years prior to the war—that was after the passing of the Housing Act of 1890, which gave local authorities the power to deal with slums—only 44 reconstruction schemes dealing with small areas were confirmed. The schemes, which had been confirmed since the end of the war, were spread over England and Wales and involved the demolition of a considerable number of properties and the provision of new houses for a large number of people. The London County Council had been particularly energetic in tackling the slum problem and had a definite programme in operation under which the worst areas were being dealt with in order of urgency. They had made substantial progress since 1919. Eleven schemes of considerable magnitude had been confirmed. In addition to this the City Corporation and the metropolitan boroughs had received confirmation of a further 12 schemes, making in all 23 schemes for the metropolis. Other large schemes were also under consideration for London. An Exchequer subvention of one-half of the estimated average annual loss on slum schemes, including the cost of rehousing, was available for local authorities who undertook schemes. Apart from the wholesale clearance of large slum areas it should not be forgotten that local authorities were paying constant attention to the condition of individual houses in their districts. He would like to quote some figures regarding the remedial work done which were taken from the reports of the medical officers of health for 1925. There had been 1,114,000 houses inspected by officers of the local authorities. Of these 244,000 were rendered fit by the owners after service of statutory notices ; 5000 were made fit by the local authorities in default of the owners, and defects were remedied in the case of 279,000 houses without the need of formal action. Thus the local authorities were able to secure repairs in 528,000 cases during the year. He was authorised by the Minister of Health to state that he considered that this problem must be tackled in a much more comprehensive manner if any considerable improvement was to be effected within a reasonable time. There was no doubt that the very large numbers of new houses which were now being completed annually must ultimately—and it was hoped in the near future—relieve the overcrowding problem ; and the time should not be far distant when local authorities would be in a position to turn their attention in a greater degree to the slums. The Minister had come to the conclusion that although the powers of local authorities for dealing with slums at present were wide and far-reaching it might be possible to introduce a further measure which should be practical and effective in helping those people who were now living in such unsatisfactory conditions. The scheme which was at present under consideration was one whereby houses in an unsatisfactory area which might be saved by the expenditure of a little money would be reconditioned, and only houses which were past redemption would be demolished. By the judicious use of powers on these lines a bad area might be opened up and improvements effected in a much shorter time than it would take to clear the whole area and rehouse the whole population of the area. Another matter on which the Minister had promised to legislate was in regard to the basis of compensation payable for insanitary property acquired in connexion with slum schemes. The Minister was not at present in a position to indicate precisely the time or the nature of the legislation ; but the matter was receiving most earnest consideration, and the Minister would make a statement on the subject when his proposals were in a more definite form.

TUESDAY, DEC. 6TH.

Course of Parliamentary Business.

The Marquess of SALISBURY, Lord Privy Seal, in the course of a statement as to the Parliamentary business which the Government hoped to get through before Christmas, said that in addition to the principal Government measures there were one or two other smaller Bills which it would, no doubt, be in the interests of the country to get through if possible. He spoke of them only in a doubtful sense, but these measures included the Road Transport Lighting Bill, the Mental Deficiency Bill, and the Nursing Homes Bill. These Bills were not yet through the House of Commons,

but if they were quite non-contentious in their Lordships' House, perhaps the Government might ask them to agree to them.

Royal Edinburgh Hospital Bill.

The Royal Edinburgh Hospital for Mental and Nervous Diseases Order Confirmation Bill was read a third time and passed.

HOUSE OF COMMONS.

WEDNESDAY, NOV. 30TH.

Trade in Derivative Drugs.

Mr. DAY asked the Secretary of State for Foreign Affairs which members of the Council of the League of Nations had ratified the suggestion that a central board should be established to assess and ration the trade in derivative drugs.—Sir A. CHAMBERLAIN replied: The appointment of a Permanent Central Board to "watch the course of the international trade" in opium and other dangerous drugs is provided for in Chapter VI., Articles 19 to 27 of the Geneva Opium Convention of 1925. A ratification of that Convention has been deposited on behalf of His Majesty covering all parts of the British Empire other than Canada and the Irish Free State. Of the other States at present members of the Council only France and Poland have ratified.

Treatment of Rheumatism.

Mr. HARDIE asked the Minister of Health whether he could give any indication by figures as to the number of people suffering from rheumatism; and whether he contemplated establishing treatment similar to that provided for tuberculosis.—Sir KINGSLEY WOOD, Parliamentary Secretary to the Ministry of Health, replied: As regards the first part of the question I do not think it practicable to give figures for the general population, though I may say that the annual rate of attack for rheumatism of all kinds among the insured population was estimated in 1924 as 27 per 1000. As regards the second part of the question, some progress is being made in the larger cities towards the provision of treatment for patients of certain classes, especially children, suffering from acute and subacute rheumatism. Such schemes are being carefully watched by my officers, but as at present advised, my right hon. friend would not feel justified on public health grounds in contemplating treatment of rheumatism by means of a general scheme on the lines of that adopted for tuberculosis.

Poor-law Guardians and Isolation Wards.

Mr. GROVES asked the Minister of Health whether he was aware that the Lambeth board of guardians reported, in July, 1920, that they could offer no suggestion which would secure the provision of suitable accommodation for isolation and observation purposes; and whether as no steps had yet been taken to comply with the requests of his department, he proposed to take any action, and, if so, what.—Sir KINGSLEY WOOD replied: My right hon. friend has been in correspondence with the board of guardians over a considerable period in regard to the provision of isolation wards in their infirmary. The guardians have not, at present, seen their way to make this provision, and they decided recently, after an investigation by a committee, to defer further consideration of the matter for six months. The question of the action to be taken is receiving my attention, and my right hon. friend is obtaining a report on the present position from one of his medical officers.

Early Notification of Tuberculosis.

Dr. VERNON DAVIES asked the Minister of Health if he was satisfied with the present position in regard to the early notification of tuberculosis in this country; and, if not, whether he proposed to take any steps to impress upon medical practitioners and the community the vital importance of early notification of this disease both to the public health and to the patient.—Sir KINGSLEY WOOD replied: My right hon. friend is not yet satisfied that the early notification of tuberculosis has been secured in all parts of the country. Circulars have already been issued by my right hon. friend's department to medical practitioners and local authorities on this subject, and the present position is described on pages 40 and 41 of the last Annual Report of the Department. The position will be again considered on the receipt of the notification returns for the present year.

State Payments to the G.M.C.

Mr. BECKETT asked the Minister of Health what State payments were made to the Medical Council during 1926; and for what purpose.—Major Sir G. HENNESSY replied: I am informed by my noble friend, the Lord President of the Council, that no State payments were made to the General Medical Council during 1926; as a matter of fact, no State payments are made to that body.

Foot-and-Mouth Disease and Public Health.

Dr. VERNON DAVIES asked the Minister of Agricult if he was aware that, for the sake of the public health, authorities of the United States of America had pla restrictions upon the import into that country of So American meat from sources infected with foot-and-mo disease; and would he consider the desirability of discu ing this aspect of the question with the Minister of Hea so as to be sure that the health of the people of this coun was adequately safeguarded.—Mr. GUINNESS replied: order was issued by the United States Department of A culture on Sept. 17th, 1926, which prohibits the impo tion of fresh or frozen beef, veal, mutton, lamb, or p from countries in which rinderpest or foot-and-mo disease exists, in order to prevent the introduction of contagion of such diseases into the United States. order appears to be designed to protect animals, beca human beings do not suffer from rinderpest. I am inform by my right hon. friend the Minister of Health that pra cally all meat imported into Great Britain from So America is examined and passed by Government inspect of the countries of origin, and is subject to further inspect on arrival in this country.

Dr. DAVIES: Is it the opinion of the Ministry of A culture that there is no danger to human beings in allow meat which may be contaminated with foot-and-mo disease to come into this country?—Mr. GUINNESS: the practice is to cook meat before people eat it I do think that there is much danger. The recorded cases foot-and-mouth disease have been traced to milk or cont with diseased animals. I do not think there is any evide in the case of cooked meat.

THURSDAY, DEC. 1ST.

Pensioners and Hospital Deductions.

Mr. MELLER asked the Minister of Pensions whether was aware that it was the practice in calculating the amo deducted from pensions in respect of hospital treatme for the period during which the recipient was underg such treatment, to count broken periods of less tha week as a full week; whether he had received compla in respect of such deductions; and whether he would t steps to see that in future such deductions were only m for the appropriate number of days of the broken perio Major TRYON replied: Payments under Article 6 of Royal Warrant and any necessary adjustments in connex with them are made on a weekly basis. I am satisfied t this practice which has always obtained under the warr is on the whole of advantage to pensioners and makes convenience of administration. I am looking into working of the rule in exceptional cases of the type wh my hon. friend has brought to my notice.

Mr. R. MORRISON: Is the right hon. gentleman aw that in some cases when a man is in hospital for nine d a fortnight's allowance is deducted. Is that not rat unfair?—Major TRYON: It is not, as a rule, a case of ded tion. In the great majority of cases the men in hosp are better off financially than those not in hospital.

New Health Insurance Legislation.

Sir RICHARD LUCE asked the Minister of Health whet he was now in a position to make any statement as to steps to be taken to give effect to the recommendation of the Royal Commission on National Health Insurance a in particular, those relating to the abolition of insura committees and the provision of a specialist and consult medical service for all insured persons by means of a par pooling of future surpluses of approved societies.—Mr. CHAMBERLAIN replied: The various recommendations of the Royal Commission have now been exhaustively cussed with the Consultative Council of Approved Societ and it is intended pursuant to that discussion to take first convenient opportunity of introducing an amend Health Insurance Bill embodying most of the recommen tions of the Royal Commission. It is not, however, p posed to provide in this Bill for the abolition of insura committees or for the extension of medical benefit to incl a specialist and consultant service by means of a par pooling of societies' surpluses.

Food Value of Fresh Milk.

Mr. HURD asked the Minister of Health whether, in interests of public health, he would take measures to g the widest publicity to the high food value of fresh liq milk for adults as well as children, as compared with mach skimmed condensed milk.—Mr. CHAMBERLAIN replied should be glad to see an increased consumption of fr liquid milk, on account of its high nutritional value, an am assured that a potent factor in bringing this abou to continue to improve its cleanliness, wholesomeness, general acceptability. A publicity campaign is at pres being conducted on the subject, with which I am fully sympathy, and I may also say that I understand that

Empire Marketing Board have the question of milk publicity under consideration at the present time.

Inspections under Food and Drugs Act.

Dr. VERNON DAVIES asked the Minister of Health if he would give for the last three years for which statistics were available the number of inspections under the Food and Drugs Act; the number of samples analysed; the percentage of adulterations; and the number of prosecutions in England and Wales.—Mr. CHAMBERLAIN replied: I have no record of the number of inspections made or prosecutions undertaken under the Sale of Food and Drugs Acts. The following is a statement showing the number of samples analysed under the Acts, the number reported to be adulterated and the percentage of adulterations in England and Wales for each of the calendar years 1924, 1925, and 1926.

Sale of Food and Drugs Acts.

	1924.	1925.	1926.
No. of samples analysed	118,000	118,930	120,617
No. of samples adulterated	6,987	7,714	7,044
Percentage of samples adulterated	5·9	6·5	5·8

MONDAY, DEC. 5TH.

Provision of Meals of School-children.

Sir WILLIAM EDGE asked the President of the Board of Education whether, according to advices which had reached him, special efforts would be needed this winter in feeding children at school; and whether he had issued any circular on the subject to local authorities.—Lord E. PERCY replied: No, Sir; generally speaking, the returns which are now being received from local authorities show the usual seasonal increase in the number of children provided with meals. The authorities appear to be watching the situation in their areas closely, and there does not seem to be any need to issue a circular.

TUESDAY, DEC. 6TH.

Foot-and-Mouth Disease and South American Meat.

Dr. VERNON DAVIES asked the Minister of Agriculture if any meat had arrived in this country from South America in recent years showing evidence of foot-and-mouth disease; if so, what representations, if any, had been made to the South American authorities as to the lack of efficiency of their inspection before shipment to this country; and if any such meat had escaped the vigilance of the inspectorate in this country at the port of arrival here.—Sir KINGSLEY WOOD replied: No instance of suspected foot-and-mouth disease in meat imported into this country from South America has been reported, although the inspectors at the ports of arrival have for many years examined meat for evidence of this disease. My right hon. friend is not aware of any authenticated evidence that meat affected with foot-and-mouth disease escaping the vigilance of the inspectors at the ports.

Services of Tuberculosis Officers.

Mr. DAY asked the Minister of Health whether his attention had been called to the special notice issued by the public health committee of the Devon county council to the effect that they wished to make it quite clear that the tuberculosis officers were absolutely free to all classes of the community, and that in no case could remuneration be made to them in any form; and whether there were any reasons for the issue of this notice.—Sir KINGSLEY WOOD replied: My right hon. friend is informed by the county council that their Public Health Committee have passed a resolution substantially in the terms stated by the hon. Member. A copy of the resolution has been sent to the officers concerned, but no other steps have been taken to make it public. My right hon. friend is informed that the resolution was passed because it was reported to the committee that one or more of the tuberculosis officers of the county council had in fact received fees or presents from individuals visited by them in their capacity of tuberculosis officers.

Deficiency of Fat in Condensed and Dried Milk.

Brigadier-General CLIFTON BROWN asked the Minister of Health whether his attention had been drawn to a recent report of the Ministry of Health, which stated inter alia that several samples of condensed and dried milk were reported against as deficient in fat, and the analysis in the case indicated that the article sold as dried milk consisted of soya bean, cane sugar, milk sugar, and a vegetable oil; what action had been taken in the matter; and in what countries were these articles produced.—Sir KINGSLEY WOOD replied: The report in question is the annual report of the Ministry of Health for 1926–27. In the particular case mentioned the vendor was prosecuted and fined. Deficiency of fat was found in 26 of the 1310 samples of condensed and dried milks taken by local authorities. In three of the cases the vendor was prosecuted and fined and in other cases warnings were given. My right hon. friend has no information as to the country of origin of the samples taken.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MONDAY, Dec. 12th.—5 P.M., WAR. Paper: Wing Comdr. T. S. Rippon, R.A.F.: The Danger Instincts.

TUESDAY.—5 P.M., THERAPEUTICS. Discussion on the Action of Synthalin, to be opened by Dr. H. H. Dale and Dr. George Graham. Other speakers: Dr. R. D. Lawrence and Prof. H. MacLean. 8.30 P.M., PSYCHIATRY. Paper: Dr. Millais Culpin: A Study of the Minor Psychoses: their Clinical and Industrial Importance. NEUROLOGY. Members of the Section of Neurology are specially invited to attend this meeting.

WEDNESDAY.—LIBRARY. The main Library will close at 5 P.M., but readers will be accommodated in other rooms until 6.30 P.M. 8.30 P.M., SOCIAL EVENING. From 8.30 to 9 P.M. Fellows and guests will be received in the Library by the President and Lady Berry. At 9.30 P.M. Sir Alexander Houston, Director of Water Examinations, Metropolitan Water Board, will give an address entitled "The Romance of London's Water-supply," to be followed by demonstrations. A number of exhibits will be on view. Music and light refreshments.

THURSDAY.—5 P.M., DERMATOLOGY. (Cases at 4 P.M.) Cases: Dr. H. W. Barber: (1) Von Recklinghausen's Disease with the "Forme Fruste" in Three of the Patient's Children. Dr. H. MacCormac: (2) Xanthoma; (3) Chancre Redux with Negative Provocative Test. Demonstration: A polychromide film, showing the present possibilities of colour cinematography, will be shown after the discussion of the cases.

FRIDAY.—8 P.M., OBSTETRICS. Specimens: Dr. W. G. Barnard: (1) An Endotheliomatous Dermoid of the Ovary; (2) Sarcoma Arising in the Cervical Stump. Mr. Frederick Roques: Endometriomyoma of the Umbilicus. Prof. Beckwith Whitehouse: Menstruation Through a Laparotomy Scar for Twenty Years, Associated with Diffuse Endometriomatosis of Pelvic Cavity of Abdominal Wall. Paper: Mr. Burt-White: An Investigation into the Ætiology of Puerperal Sepsis. 8.30 P.M., ELECTRO-THERAPEUTICS. Papers: Mr. E. W. Twining: On Interlobar Pleurisy (with special reference to mediastino-interlobar effusion). Dr. C. G. Teall: A Radiological Study of the Bone Changes in Renal Infantilism.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY, Dec. 12th.—8.30 P.M., Discussion on Insomnia, to be introduced by Dr. Eustace M. Callender, followed by Dr. Gordon Holmes and Sir Maurice Craig.

CHELSEA CLINICAL SOCIETY.

TUESDAY, Dec. 13th.—8.30 P.M. (at the Hotel Rembrandt, Thurloe-place, S.W.), Mr. P. Jenner Verrall, Mr. A. G. Timbrell Fisher, and Mr. S. L. Higgs will open a discussion on Orthopædics in General Practice. The meeting will be preceded by dinner at 7.30 P.M.

WEST KENT MEDICO-CHIRURGICAL SOCIETY, Miller General Hospital, Greenwich, S.E.

FRIDAY, Dec.9th.—8.45 P.M., Mr. Victor Bonney: Puerperal Sepsis (Purvis oration).

EUGENICS SOCIETY.

WEDNESDAY, Dec. 14th.—8.30 P.M. (in the rooms of the Royal Society, Burlington House, W.), Sir Bernard Mallet: Problems for Research Arising out of the Population Conference.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, Dec. 12th, to SATURDAY, Dec. 17th.—FELLOWSHIP OF MEDICINE. Lecture at Medical Society, 11, Chandos-street, Cavendish-square, W. Mon., 5 P.M., Mr. Ernest Clarke: Practical Hints in the Correction of Errors of Accommodation and Refraction of the Eye.—HOSPITAL FOR DISEASES OF THE SKIN, Blackfriars-road, S.E. Special course, afternoons only, second week. Tues., special demonstration by Dr. Haldin-Davis.—INFANTS HOSPITAL, Vincent-square, S.W. Afternoon course, second week.—WEST END HOSPITAL FOR NERVOUS DISEASES, 73, Welbeck-street, W. Last week of post-graduate course in neurology; every afternoon at 5 P.M. Further information from the Secretary, Museum 2236.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, W.

MONDAY, Dec. 12th.—10 A.M., Dr. Dowling: Skin Department. 11 A.M., Mr. Tyrrell Gray: Surgical Wards. 2 P.M., Dr. Trevor Davies: Gynæcological Department.

TUESDAY.—11 A.M., Mr. Endean: Demonstration of Venereal Diseases. 2 P.M., Dr. Shaw: Medical Out-patients. 2 P.M., Mr. Sinclair: Surgical Out-patients.

WEDNESDAY.—10 A.M., Dr. Burnford: Medical Wards. 2.30 P.M., Mr. Donald Armour: Surgical Wards. 4.30 P.M., Mr. Donald Armour: Head Injuries (lecture).

THURSDAY.—10 A.M., Dr. Grainger Stewart: Neurological Department. 2 P.M., Mr. MacDonald: Genito-urinary Department. 2 P.M., Mr. Bishop Harman: Eye Department. 4.30 P.M., Dr. Pritchard: Intravenous Treatment (lecture).
FRIDAY.—10 A.M., Dr. Pritchard: Special Medical Treatment Clinic. 12 noon, Dr. Redvers Ironside: Clinical Demonstration. 2 P.M., Mr. Vlasto: Throat, Nose, and Ear Department.
SATURDAY.—9.30 A.M., Dr. Burnford: Bacterial Therapy Department. 10 A.M., Dr. Owen: Medical Diseases of Children.
Medical and Surgical Out-patients, Operations, Special Departments, daily, 10 A.M. to 5 P.M., Saturdays, 10 A.M. to 1 P.M.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION, St. James's Hospital, Ouseley-road, Balham.
WEDNESDAY, Dec. 14th.—4 P.M., Major Meurice Sinclair: Clinical Demonstration of Fracture Cases.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.
MONDAY, Dec. 12th.—2.30 P.M. to 5 P.M., Medical, Surgical, and Gynæcological Clinics. Operations.
TUESDAY.—2.30 P.M. to 5 P.M., Medical, Surgical, Throat, Nose, and Ear Clinics. Operations.
WEDNESDAY.—2.30 P.M. to 5 P.M., Medical, Skin, and Eye Clinics. Operations.
THURSDAY.—11.30 A.M., Dental Clinic. 2.30 P.M. to 5 P.M., Medical, Surgical, and Ear, Nose, and Throat Clinics. Operations.
FRIDAY.—10.30 A.M., Throat, Nose, and Ear Clinics. 2.30 P.M. to 5 P.M., Surgical, Medical, and Children's Diseases Clinics. Operations.
There will also be a special demonstration of medical cases on Mon., Dec. 12th, at 2 P.M., and of surgical cases on Fri., Dec. 16th, at 2 P.M., by Dr. A. J. Whiting and Mr. E. Gillespie respectively.

ROYAL NORTHERN HOSPITAL, Holloway-road, N.
TUESDAY, Dec. 13th.—3.15 P.M., Dr. A. Lisle Punch: Asthma.

BELGRAVE HOSPITAL FOR CHILDREN, 1, Clapham-road, S.W.
WEDNESDAY, Dec. 14th.—4.30 P.M., Clinical Meeting, conducted by Dr. M. S. Thomson.

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road, W.C.
WEDNESDAY, Dec. 14th.—4 P.M., Demonstration of Interesting Cases.
FRIDAY.—4 P.M., Mr. Watkyn-Thomas: Pre-cerebellar Cysts.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 49, Leicester-square, W.C.
TUESDAY, Dec. 13th.—5 P.M., Dr. S. E. Dore: Erythemato-squamous Eruptions.
THURSDAY.—5 P.M., Pathology Demonstration.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE COURSE.
TUESDAY, Dec. 13th.—4.15 P.M., Mr. H. H. Rayner: Surgical Diathermy.

UNIVERSITY OF SHEFFIELD POST-GRADUATE CLINICS.
FRIDAY, Dec. 16th.—3.30 P.M., Dr. Grout: Radiology in Diagnosis.

JAMES MACKENZIE INSTITUTE FOR CLINICAL RESEARCH, St. Andrews.
TUESDAY, Dec. 13th.—4 P.M., Prof. R. Muir: The Dissemination of Malignant Disease, with special reference to the Abdomen. Discussion to be opened by Dr. J. Anderson.
FRIDAY.—4 P.M., Case Reading and Discussion, in which all medical practitioners are invited to take part.

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.C.
WEDNESDAY, Dec. 14th.—4 P.M., Prof. E. W. Hope: The Changed Conditions of Quarantine.

PEOPLE'S LEAGUE OF HEALTH.
THURSDAY, Dec. 15th.—6 P.M. (at 11, Chandos-street, Cavendish-square, W.), Dr. H. Crichton-Miller: Development and Function of Mind.

Appointments.

BROOKE, R., M.B., B.S. Lond., F.R.C.S. Eng., has been appointed Hon. Orthopædic Surgeon to the Royal West Sussex Hospital.
COMBE, W., M.B., Ch.B. Glasg., Certifying Surgeon under the Factory and Workshop Acts (Snodland District, Kent).
HALL, G., M.D., F.R.C.P. Lond., Honorary Physician, Royal Victoria Infirmary, Newcastle-on-Tyne.

Vacancies.

For further information refer to the advertisement columns.
Ancoats Hospital Convalescent Home, Great Warford, Alderley Edge.—Hon Visiting Phys. £50.
Barnsley, Beckett Hospital and Dispensary.—Sen. and Jun. H.S.'s. £220 and £140 respectively.
Basingstoke, Park Prewett Mental Hospital, nr. Basingsto Hants.—Med. Supt. £950.
Birmingham and Midland Homœopathic Hospital and Dispensa H.S. £150.
Birmingham Union, Dudley-road, and Selly Oak Hospitals Pathologist. £750.
Bolton Infirmary and Dispensary.—H.S. £150.
Chichester, Graylingwell Mental Hospital.—Jun. M.O. £300.
Croydon County Borough.—Asst. M.O.H. for Tuberculosis. £7
Derby, Derbyshire Royal Infirmary.—H.S. for Ear, Nose, a Throat Dept. £150.
Dreadnought Hospital, Greenwich.—H.P. and H.S. Each at r of £110.
East Sussex Administrative County.—County M.O.H. £1200
Exeter, Wonford House Hospital.—Med. Supt.
Exminster, Devon Mental Hospital.—Jun. Asst. M.O. £300.
French Hospital and Dispensary, 172, Shaftesbury-avenue, W.C Asst. Pathologist. £100.
Hampstead General and North-West London Hospital, Haverst Hill, N.W.—Cas. Surg. O. and H.S. Each at rate of £1
Hove Hospital, Sackville-road, Hove.—Res. M.O. £150.
Huddersfield Royal Infirmary.—Jun. H.S. £150.
Hull Royal Infirmary.—Res. House Governor. £500.
Infants Hospital, Vincent-square, Westminster.—Patholog £600.
Ipswich, East Suffolk and Ipswich Hospital.—H.S. Also Cas. Each £100.
Leeds General Infirmary.—Gen. Manager.
London Hospital, E.—Cardiographic Dept. Paterson Resea Scholar. £400.
London Temperance Hospital, Hampstead-road, N.W.—Cas. At rate of £120. H.P. At rate of £100. Med. Reg. 40 g
Manchester, Ancoats Hospital.—H.S. At rate of £100. A Anæsthetists. 10*s.* 6*d.* per attendance.
Manchester, Victoria Memorial Jewish Hospital, Cheetham Hon. Asst. Phys.
Miller General Hospital for South-East London, Greenwich-ro S.E.—H.S. £125.
Nelson Hospital, Merton, S.W.—Res. M.O. At rate of £100.
Newcastle-upon-Tyne, Royal Victoria Infirmary.—Hon. Asst.
Portsmouth Royal Hospital.—Cas. O. At rate of £100.
Prison Medical Service.—M.O., Class II. £350.
Royal Waterloo Hospital for Children and Women, Waterloo-ro S.E.—H.P. At rate of £100.
St. Pancras Hospital, &c.—Jun. Asst. Med. Supt. £350.
St. Peter's Hospital for Stone, &c., Henrietta-street, Covent Gard W.C.—Clin. Assts.
St. Thomas's Hospital.—Phys.
Salford Royal Hospital.—Res. Surg. O. £200. Also two H.S H.P., and Cas. H.S. Each at rate of £125.
Sheffield, Children's Hospital.—Res. H.S. £100.
Sheffield, King Edward VII. Hospital, Rivelin Valley-road H.S. At rate of £75.
Shrewsbury, Royal Salop Infirmary.—H.S. £200.
Torquay, Torbay Hospital.—Res. M.O. £200.
Western Ophthalmic Hospital, Marylebone-road, N.W.—Sen. Jun. Non-Res. H.S.'s. At rate of £150 and £100 respectiv
Willesden General Hospital, N.W.—Vacancy on Hon. Med. St
Wolverhampton and Staffordshire Hospital.—Resident Anæst tist. At rate of £100.

The Chief Inspector of Factories announces a vacant appointm t for a Certifying Factory Surgeon at Folkestone (Kent).

Births, Marriages, and Death

BIRTHS.

GRANT.—On Nov. 27th, at Barkston-gardens, S.W., the wif of Major J. F. Grant, R.A.M.C. (retired), of a daughter.
HILL.—On Dec. 1st, at Dalestead, Caterham Valley, Surrey, e wife of F. T. Hill, M.C., M.R.C.S., M.R.C.P., of a son.
TURNER.—On Nov. 26th, the wife of Terence Turner, M.R.C of The Bolt, Windsor Forest, of a daughter.
VEVERS.—On Nov. 22nd, at "Lavalance" Nursing Home, wife of Oswald H. Vevers, M.R.C.S., L.R.C.P. Lond., a son.

MARRIAGES.

JACK—DARLING.—On Dec 1st, at St. George's U.F. Chu Edinburgh, Donald Jack, L.R.C.P. & S., to Anne, you daughter of the late Dr. T. Brown Darling, Edinburgh.
THUNDER—NORTHALL-LAURIE.—On Nov. 26th, at St. Jam Spanish-place, W., Wilfrid Michael Thunder, M.B., Ipoh, Perak, F.M.S., to Eileen Frances, youngest daug of the late Reginald Peter Northall-Laurie, and of M Northall-Laurie, of Albion-street, Hyde Park, W.

DEATHS.

FOULDS.—On Dec. 4th, Francis Henry Foulds, M.R.C L.R.C.P., of Severn House, Droitwich Spa, aged 59 yea
LOMBARDI.—On Nov. 28th, suddenly, George Lombardi, L.I R.C.S. Eng.
NORBURN.—On Dec. 1st, following operation, Albert Norbu M.D., B.S. Lond., of Oldfield Park Lodge, Bath.
PIGGOTT.—On Dec. 1st, at "St. Wilfrid's," Mill Hill, Sudbu Suffolk, Edward Alfred Piggott, L.R.C.P., L.R.C.S. Ed formerly of Clare, Suffolk, aged 78.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notice Births, Marriages, and Deaths.

Notes, Comments, and Abstracts.

SPINNERS' SCROTAL CANCER.

EXTRACT FROM ANNUAL REPORT FOR 1926.

BY JAMES ROBERTSON, M.B., C.M. GLASG., D.P.H.,
MEDICAL OFFICER OF HEALTH FOR DARWEN.

A Departmental Committee was appointed to "consider idence as to the occurrence of Epitheliomatous Ulceration ong Mule-Spinners" and to report to the Home Office. eir Report was published and circulated in April, 1926,[1] out four weeks after my printed thesis dealing with this bject. The Committee asked me for a synopsis of my rk and invited me to appear before them for discussion June 17th, 1925. At that date the detailed work I s engaged in being incomplete, the final facts and con- sions stated in my thesis were not then arrived at. In far as these completed facts and conclusions do not pport the Report I feel it my duty to offer the following nstructive criticism.

Findings of the Departmental Committee.

The Committee's Report is founded upon two principal guments:

First Argument.—That of Mr. A. H. Southam and the e Dr. S. R. Wilson, of Manchester,[2] namely: (*a*) that the spindles are oiled by mineral oil this oil is continuously ayed on to the spinner's overalls in the region of the otum; (*b*) that as the spinner pieces his broken ends must lean over the faller shaft; by so doing his scrotum nes into contact with this shaft, thereby causing friction. e oil, plus the friction, is the cause of the epithelioma.

Second Argument.—Dr. A. Leitch produced epithelioma n mice by rubbing mineral oil into their backs.

From these two arguments it is concluded that oil is the se of this disease. While I agree that mineral oil plus tion can be a cause of epithelioma, I feel satisfied that have definitely proved that neither the faller shaft, the ndles, bolster, or any part of the mule take part as a tor in the causation of this disease. As regards the ng of the spindles, the Committee's report and my ervations agree as to the facts, but differ as to the clusions to be drawn from them.

Exposure to Mineral Oil.

The Committee's Report (p. 17) says: "We have been ck by the different amounts of oil used in different mills the same type of mule. This apparently varies from a imum of ¼ pint to a maximum of slightly over 1 pint mule per day. We would suggest that in the interests economy and of cleanliness attention should be paid to ucing this to the minimum compatible with efficient rication. Our experiments show that owing to centrifugal on a large proportion of this oil is sprayed off during first few minutes after starting the machinery, but that asional drops are still being thrown off after two or even e hours. The oil is thrown from that portion of the e spindle immediately above the bearing, and normally does not appear to creep more than about 1/16 or ⅛ inch the spindle."

In my thesis I detailed experiments of repeated tests ch definitely established that all oil which is to be ayed off comes off within the *first three seconds*, and t the spinner cannot possibly be in a position to get of this spray upon his overalls. Apparently no actual s were made by the Committee as they are content to "the first few minutes." The quantity of oil thrown in three seconds has been found, by my experiments, e actually more than the Committee in their Report 18) states is thrown off—namely, my finding 1/10th pint per day per mule instead of the Committee's ing of 1/13th of a pint.

The Report further states: "That a quarter to one pint il per mule per day is used in the oiling and there are oilings." There are 9600 minim drops in one pint. the Committee's smallest computation, therefore, of nt of oil per mule per day there would only be 2400 minim s per mule per day or 1200 at each oiling, and as there 1320 spindles (p. 18) per mule, this means that each dle would get less than a drop per oiling, and if one s it at ½ pint per mule per day it would still be less than two drops per oiling, and as the spindles are revolving at 11,000 revolutions per minute it is difficult to take seriously the suggestion that these two drops or any part could be sprayed off for hours.

It must be remembered also that, when the oil is being sprayed off, that portion which is being sprayed towards the worker is only a quarter of the total spray circle. An equal amount will be sprayed off, of course, within the first three seconds towards the creel and to the right and left. I therefore contend that no oil can reach the spinner from the bolster or any part of the mule. My photographs further show very definitely that under no working conditions does the man's scrotum touch the faller shaft.

It may be stated that the whole theory of the faller shaft coming into contact with the spinner during the process of piecing breaks down in association with the spinners themselves. It is learned from them that when piecing is taking place to touch the faller shaft involves a loss of balance, and this happens to none except beginners. Just as the writer of the Committee's Report uses the phrase "first few minutes," in regard to the oil spray, so (p. 16) he states that the height of the bolster above the floor level is 2 feet 6 inches, whereas the exact height is 2 feet 3½ inches. This is material to our discussion, as if oil did spray from the bolster at a height of 2 feet 6 inches it would be at the scrotal level, but at 2 feet 3½ inches it is below the scrotal level. It is sufficient to say that all spinning mules are standardised.

As I have shown, the spinning mule can take no part as a factor in this disease, recommendations 2 and 3 given in the Report (p. 27) will add to expense and serve no purpose. These recommendations are: "(2) Development of a non-splash type of spindle bearing, more particularly for new mules; (3) prevention of oil splash from the spindles of existing mules by means of some form of guard, the type to be decided by a series of tests to be mutually agreed upon and arranged by the Masters' Federation and the Operative Spinners."

Although I have demonstrated that oil is not thrown on to the spinner from the spindles, oil however is found upon the overalls in two areas—namely, at the knees and down the flanks or thighs. This oil is received from the floor during the process of repairing any defects which may happen to the working parts of the mule. The spinner kneeling to carry out these repairs receives the oil direct upon his knees and when finished he wipes his hands down his flanks to dry off the oil before he does any piecing, as he must not oil-stain any thread. Most of the oil, however, is *received each Saturday morning* when the spinner has to clean every part of his pair of mules. After this cleaning up, which is the real dirty and oily part of his week's work, the spinner takes his dirty overalls home and returns on Monday morning with a clean pair. These facts are fully detailed in my thesis, as also the fact that by chemical analysis, while oil was determined to be present in the areas mentioned, no oil was found within the scrotal area. Scrotal sweat was, however, found by analysis in the fork area of overalls.

Reviewing all these facts, it cannot, in my opinion, be contended that because Dr. Leitch produced epithelioma under laboratory conditions upon mice with oil that similar laboratory conditions obtain in the mill under ordinary working conditions. Further, if this oil was cancerogenous, as the men work in bare feet, which are permanently oily, and under friction afterwards in their oily socks, there would be cases of epithelioma of the feet. I have heard of no such case amongst spinners, although I have seen several cases of epithelioma of the feet. Further, there are mills in Lancashire where women have always been employed as spinners, and no case of vulvar epithelioma is recorded. Neither does the oil theory explain the fact that 84 per cent. of these epitheliomas occupy an exactly similar site, the remaining 16 per cent. occurring upon a second specific site, as stated and explained in my thesis.

Chronic Irritation from Clothing.

Many observations which I have made since confirm my then stated opinion—namely, that the cause of spinners' scrotal cancer is due to the friction of the fork of the hard blue or white overall acting upon the scrotum each time the spinner leans over the faller shaft to piece, the fork being pulled up by the stretching movements of the body required by the piecing operation acting upon an inelastic brace. The aniline dye which stains the legs and scrotum, and the dirt on the latter, are aggravating factors. I suggest that the hard rough open seam at the overall fork produced irritation 200 to 240 times an hour 5½ days per week upon the scrotum at the specific sites of this disease, according to the spinner's reach in piecing his broken end. There are certain facts in the Committee's report which support my contention.

[1] THE LANCET, 1926, i., 874.
[2] Brit. Med. Jour., 1922, ii., 971.

Geographical Distribution of Scrotal Cancer Cases collected from 1876 Onwards.

District.	Spinners.		Ex-spinners in other occupations.		Total.	Rate per 1000.
	Scrotum.	Other parts of the skin.	Scrotum.	Other parts of the skin.		
Oldham (8131)	160	39	26	4	229	*20*
Bolton (3900)	57	12	11	—	80	*15*
Ashton-under-Lyne (2740)	25	8	11	2	46	*9*
Rochdale (1702)	22	3	3	1	29	*13*
Wigan (1272)	8	6	1	—	15	*6*
Preston (113)	19	1	4	—	24	*17*
Blackburn (974)	44	3	4	2	53	*45**
Stockport (788)	7	1	4	—	12	*9*
Halifax (698)	5	2	1	—	8	*7*
Manchester (548)	11	2	2	1	16	*20*
Burnley (427)	18	2	2	—	22	*42**
Huddersfield (320) ..	4	—	—	—	4	*12*
Keighley (56)	1	—	—	—	1	*18*
Total (22,699) ..	381	79	69	10	539	—

The districts marked with * changed to rough blue overalls about 1905, the other districts changed to rough white about 1905, but adopted the blue about 1917.

It will be noticed that the italicised figures (which have been added by me) in column 7 of the accompanying table giving the rate per 1000 spinners employed show a heavier rate in the Blackburn and Burnley areas. It was in these two areas only that the wearing of blue overalls commenced in 1905. Other areas did not adopt blue until 1917, but from about 1905 wore white overalls made of the same material in all respects except colour. The question does arise as to whether the aniline dye in the blue overalls added to the friction of the overall fork accounts in some measure for the increased incidence in these two areas. I stress the fact that the fustian overall was discarded in 1905 by some 90 per cent. of spinners, the present-day rough cotton material being used since that date. The very few cases of scrotal epithelioma during the years prior to 1905 and for some years afterwards did not exceed the average rate for the general population.

The Report states (p. 5): "We have also made some inquiries abroad as to whether there is evidence of a similar incidence amongst cotton mule-spinners, but, so far, replies from France, Germany, Russia, Poland, and America have led to entirely negative results. This is a little difficult to explain, but it must be borne in mind that the number of mule spindles in Great Britain is very much greater than the number in any other single country, that the number of persons employed abroad is consequently less, and that the number of cases likely to occur annually, if at all, would be very small."

The explanation I suggest for the absence of the disease in mule-spinners in the foreign countries mentioned is the fact that in those countries braces are not worn, but a belt only.

American Experience.

My theory has received confirmation from the following commentary added by Dr. Derric C. Parmenter to my article upon Spinners' Cancer in the *Journal of Industrial Hygiene* (June, 1927):—

"So far as I have been able to discover, cancer of the scrotum is relatively rare in the United States. Cases have been reported among men working with tar and with the paraffin oils, but these cases are few and not well defined. There seems to be very few recorded cases of cancer which are directly traceable to the cotton trades, such as spinners' scrotal cancer. This may be due to: (1) lack of observation heretofore; (2) the tendency of mill hands in the South to wear trousers with belts rather than shoulder-strap overalls; (3) the general tendency of mill hands in the North, the majority of whom wear overalls, to wear also some sort of underclothing.

"Any of these factors would undoubtedly tend to reduce the occurrence of anything like the spinners' cancer as discussed in Dr. Robertson's article. In Massachusetts at the present time an intensive study of cancer is being conducted by the State authorities, with special reference to its ætiology. This investigation should call attention to any types of cancer which may be of industrial origin. As yet, however, no definite conclusions have been reached."

Association with Ichthyosis.

After an address I gave to the Pathological Society at Manchester on spinners' scrotal cancer, Dr. L. Savatard showed a case of this disease, the patient also suffering from ichthyosis. We arranged to carry out some further investigations along this line, and Dr. Savatard permits me to publish the following extract from a paper he read to the Section of Dermatology, R.S.M., in May last:—

"What is the relative frequency of ichthyosis? It is apparently fairly common in Lancashire, but its incidence may vary in different parts of the country. In an examination of 400 operatives I have found a 5 per cent. incidence. Through the kindness of Dr. Robertson I have recently been afforded the opportunity of inspecting 400 mule-spinners at work. Their ages ranged from 15 years to 65 years and the duration of their occupation from two days to 50 years. I found 20 affected with ichthyosis. In ten the affection was slight and in the other ten the condition was well marked. Of these, two had suffered from scrotal cancer. Three presented keratotic lesions on the face and temporal regions. I saw no such lesions in the non-ichthyotics; hyperkeratosis of the palms was seen only in the ichthyotics. I could find no evidence of any dermatosis of an occupational character, unless it be two cases of mild folliculitis of the arms in two youths who were also affected with ichthyosis.

"As a result of this investigation I believe that ichthyosis is an important ætiological factor in mule-spinners' cancer. Though I do not deny that scrotal cancer does arise apart from ichthyosis, I am convinced that the great majority of such patients will give evidence of an ichthyotic skin.

"It is not my purpose to discuss the cause of scrotal cancer, but I would express my regret that the Department Committee as a result of its inquiry in 1925 should have found that 'in the absence of exposure to mineral oils there would be no mule-spinners' cancer.' I cannot help thinking that this conclusion was premature. Dr. Robertson, in a careful inquiry into this subject, comes to a very different conclusion."

Conclusion.

The experience gained in visiting a large number of mills makes me entirely agree with the Committee that much can be attained by regular medical inspection and advice. I am further of opinion that such inspection would rapidly secure personal hygiene amongst spinners, and thin itself would tend to lessen the incidence of this serious disease.

I also strongly recommend that braces should be discarded, and that belts be worn, and further, that the spinner should wash his thighs and scrotum with soap and water every night. By these means I am confident that this disease would be conquered.

IMMUNISATION AGAINST DIPHTHERIA.

AT a recent meeting of the Baby Week Council, Prof. H. R. Kenwood, who presided, maintained that diphtheria would be comparatively rare if children were to obtain the protection which immunisation by toxin-antitoxin provided. The method was no longer experimental, but had been tested and found capable of producing excellent results. Dr. C. C. Okell said that by means of the Schick test and active immunisation, diphtheria could be prevented with practical certainty, whilst Dr. R. A. O'Brien considered that the goal to be aimed at was the simultaneous protection of children against both diphtheria and scarlet fever by two small injections which would not interfere with their ordinary health and activity, or at most would cause slight discomfort for a day. Dr. C. W. Hutt stated that immunisation against diphtheria had been done at a maternity and child welfare centre in Holborn since 1924. In Edinburgh immunisation was carried out in well-organised institutions, such as public elementary schools; administration was thus facilitated and the machinery for gaining the parents' consent was simple. It would be a great step forward if the London County Council authorise similar measures, for the method would then become favourably known to parents, and they would bring an increasing number of young children to the welfare centres.

Dr. C. S. Thomson communicated a paper dealing with the persuasion of the public. The administrative official, he said, must be a whole-hearted enthusiast—"a tearer if not a raging propagandist"—and the man who performed the actual tests and inoculation must be a lover of children and kindly disposed. In Deptford he had written articles and reports on the subject for his public health committee, had distributed numerous leaflets in the district, and had organised a meeting at the town hall, for teachers, parents, and councillors, where the Mutual Property Insurance Company's film, "The Risk of Diphtheria Banished," had been shown. When a child received its first inoculation he was careful to give the parents a form showing that protection did not take effect for six or eight months after the third and last injection. Parents ought to watch the tests and immunisation to see how simple they were, which is the best propaganda could be done by interviewing parents whose children had contracted the disease.

Dr. C. T. Maitland described his recent experience in Stoke Newington, where he had had more applicants for immunisation than he could deal with in the time available for this work.

An Address

ON THE

PRESENT POSITION OF THE VOLUNTARY HOSPITALS.

A Paper read before St. Mary's Hospital Medical Society on Oct. 19th, 1927,

BY E. GRAHAM LITTLE, M.D., F.R.C.P. LOND., M.P.,

DERMATOLOGICAL PHYSICIAN TO ST. MARY'S HOSPITAL.

SINCE I gave this title for a paper to your Society the early part of the summer much has been ritten upon the subject, and a strong general interest as been aroused anew in this question. I have been rther stimulated by a recent attack upon the luntary hospitals by Prof. Hey Groves, of Bristol, th which I shall deal later.

REPORTS OF PARLIAMENTARY COMMITTEES.

During the past few years Parliament has taken strong interest in the position of the voluntary spitals, and two Parliamentary bodies have tually investigated and reported upon that position. e first was the Voluntary Hospitals Committee, pointed on Jan. 25th, 1921, by Dr. Addison, when was Minister of Health, "to consider the present ancial position of voluntary hospitals and to make commendations as to any action which should be ken to assist them." That Committee issued an erim report in March, 1921, which dealt mainly th one suggestion. The Committee was very viously influenced by the knowledge that the luation of approved societies under the National alth Insurance Acts showed an enormous accu- ulated surplus over the amounts required for the rposes of the Acts. The Committee were "strongly the opinion that in the interests both of the hospitals d of these societies a substantial part of the posable surplus should be applied to providing a atribution towards the cost of maintenance of mbers in hospitals." These friendly societies have ilt up their accumulated funds very largely by the interested help of medical men, the health benefits ving been secured in great measure by the watchful e exercised by the medical officers to these societies, l there is widespread feeling that some of this umulated wealth should return indirectly to the erests served by doctors. The payments to hospitals patients, initiated in this way, have been greatly ended, a subject upon which I shall have something say later.

The Committee made a final report in May, 1921, first recommendation being that a central body uld be set up for Great Britain on the lines of the iversity Grants Committee, which should bear the me of the "Voluntary Hospitals Commission," der the Ministry of Health. Inasmuch as there s already an existent organisation for London in the ng Edward's Hospital Fund, the Hospitals Com- sion dealt only with institutions outside London. t Commission is still in existence. Another novation of far-reaching importance has come about he result of the recommendations of the Voluntary spitals Committee in 1921—namely, the setting up ocal committees outside London, in each county, nty borough, or other selected area. These local mittees have been of singular service in stimulating eral interest in the hospitals in each area; the orts published by one of these local committees, t for the city of Manchester, may be regarded as model for all others to imitate. Indeed, the work hese committees throughout the country probably ounts in no small measure for the marvellous overy which the provincial hospitals have made ards financial stability, as I shall mention later. committee of 1921 took a large volume of evidence from experts in hospital management, both lay and medical. Their conclusions in favour of maintaining the voluntary system are set out, I think with admirable cogency, on p. 8 of the final report (Cmd. 1335).

Like the preceding Voluntary Hospitals Committee, the Voluntary Hospitals Commission in their turn expressed themselves in favour of the continuation of the voluntary system. They declared in 1923 that "the voluntary system possesses strong vitality," and that "its chances of permanent survival are increasingly hopeful." They emphasise the fact that "the whole object of the Commission is to maintain with all the means at their command the voluntary system intact" (p. 15, Interim Report, 1923). The Commission had the important duty of distributing amongst the hospitals the special Parliamentary grant of half a million sterling, distribution having been completed by March 31st, 1924. The necessities for this grant arose largely from special conditions; the after-effects of the war were imposing an intolerable strain upon the voluntary system, and the grants made by the Commission were intended to meet this exceptional strain. Since that date the financial position of the voluntary hospitals has steadily improved. The annual reports for 1923, 1924, and 1925, issued by the Joint Council of the Order of St. John and the British Red Cross Society, are compilations of the utmost value for forming an estimate of the hospitals dealt with. These are exclusive of the area covered by King Edward's Hospital Fund for London, the reports of which should be consulted independently. The position of the provincial voluntary hospitals detailed in the report for 1925 (issued in October, 1926, the last available) showed that more than 75 per cent. of the number examined, some 750, showed a credit balance in their maintenance account, and their invested funds had increased by a sum of six million sterling in the financial period 1920–25. This achievement is notwithstanding the fact that there was an increase in 1925 over 1924 of 40,000 in-patients and 150,000 out-patients. "This wonderful record," says Sir Arthur Stanley, the Chairman of the Joint Council, "shows the great increase of confidence on the part of the general public in the treatment they receive when they enter the hospitals." The position in the provinces is rather better than that in London, 59 per cent. only of London hospitals showing a surplus for the year of general fund income over general fund expenditure. It is interesting to note, further, that the hospitals with medical schools attached (and there are 14 such provincial hospitals) show a very slightly larger cost than the hospitals without such schools, the principal difference being caused by the larger salaries and wages paid at the medical school hospitals. Those who wish to investigate these very interesting figures in detail are referred to p. 49 of the report of the Voluntary Hospitals Commission for 1925. The examination of a few items shows how closely expenditure has been regulated:—

	Medical school hospitals.	Non-medical school hospitals.
Provisions..	35·5	35·1
Surgery and dispensary..	29·9	23·2
Domestic	31·1	29·2
Salaries and wages ..	64·0	57·8

Perhaps some detailed figures will best convey the exact position at present. The average cost of a bed in 1913 was £100 a year; the average cost in 1925 was £200 a year. This present cost is met as follows: £36 from patients, £12 from public authorities, £59 from interest, dividends, &c.; the balance, constituting nearly half of the cost, is derived from voluntary gifts.

For the London area the authority which discharges the same functions as the Voluntary Hospitals Commission in the provinces is the King Edward's Hospital Fund for London, whose headquarters are 7, Walbrook, E.C. 4. This was founded in 1897 as a memorial of the sixtieth anniversary of the Queen's reign, Prince

Albert Edward of Wales being the President. It is now consequently celebrating its thirtieth anniversary, and a splendid meeting was held on Oct. 18th, 1927, of the King's Fund in combination with the League of Mercy, at which the Prince of Wales made a notable speech, rightly insisting upon the importance of propaganda in making the needs and the services of the hospitals as widely known as possible. He was able to announce that the sum distributed last year to the hospitals was nearly £40,000 more than the year before, and that gifts amounting to £25,000 had been received to celebrate the thirtieth anniversary. The purpose and activities of the Fund are thus set out; it does not assist at present in the foundation of new institutions except in cases where new populations have grown up since the date of the foundation of the Fund, nor does it entertain applications from institutions which have not been in existence in a properly constituted form for a period of at least three years. Its operations are confined to hospitals within 11 miles of St. Paul's. It has distributed since its foundation over five and a half million sterling. Its annual revenue for disposition at its discretion amounts to about a quarter of a million. During 1925, the last year under review, nearly three-quarters of a million was subscribed for building schemes as apart from maintenance. As is so fortunately the case with everything to do with the voluntary hospitals system, the administration of the Fund has attracted some of the best men in the profession to its service. The Fund has exerted the most beneficial effect upon all the activities of the London hospitals. Under the presidency of the Prince of Wales it is ever increasing its usefulness. The following is an extract from the speech which he made in July, 1924. He said :—

"I wonder if there is anyone who still thinks the voluntary hospital system is dead, or dying. If so, let him look at the facts and figures before us to-day. Even in 1920, when the crisis was at its worst, the hospitals of London had an income of £2,400,000, as against £1,500,000 before the war. Since 1920 their income has increased to £2,850,000 without counting any of the £400,000 raised by the Combined Appeal; £990,000 has been added to their endowments; and £1,100,000 has been received for extensions and improvements. This means that, over and above their annual income, which last year was nearly twice what it was before the war, the voluntary hospitals, in London alone, have received in three years two and a half millions for special purposes. And this does not include the additions, during this same period, to the investments of the King's Fund itself. Then, again, there are 1600 more beds than there were before the war, and the extension schemes now in hand, or proposed, would add another 1000. This is not decay or death; it is life—and very vigorous life. More than that, it is growth. The hospitals are not satisfied with merely making both ends meet—difficult as that seemed a short while ago. They are constantly expanding in response to the ever-growing need for better equipment and more beds. . . . Income of all kinds, voluntary contributions, patients' payments, and workmen's collections, the ordinary distribution of the King's Fund, all are increasing."

He was able to speak of two legacies which had increased the income of the Fund by £40,000 a year, and of still another legacy amounting to £200,000, which could be applied at the absolute discretion of the Fund. In 1926, again, the Prince was able to report that during that year some 1200 additional beds had been provided, 144 of which were earmarked for accident cases, a provision which represents an attempt to cope with the modern scourge of injuries from motor traffic. "This favourable position," the *Times* remarked in a leading article commenting upon this speech, "however, can remain favourable only if the generosity of the public keeps pace with the zeal of physicians, surgeons and nurses, research workers, and administrators."

The expenditure for 1925 of 143 hospitals, representing roughly 12,000 occupied beds, was somewhat more than three million sterling; the amount distributed by King Edward's Fund in the same year was just a quarter of a million. It will be interesting to read the report for the past year, which should appear in the press this week.

NEW SCHEMES.

The wise foresight of the administrators of the Fund is further exemplified by two new schemes which are under consideration at the present time.

1. A pension scheme for nurses and hospital officers has made great headway already, and has been adopted by 86 hospitals out of 143.

2. A still more recent proposition has to do with the provision of paying beds at the hospitals, and a committee presided over by Lord Hambledon, with Sir John Bradford and our senior surgeon, Mr. Warren Low as his medical colleagues, is thrashing out this matter.

One very beneficent reform instituted by the Fund was the scheme for a uniform system of hospital accounts. This scheme, established about four years ago, has been several times revised to meet changing conditions, and its acceptance is a condition of grant from the King's Fund, from the Sunday Fund, and the Saturday Fund, as well as by the Hospital Commission which deals with the provincial hospitals. By its experienced and sympathetic supervision economy in the management of hospitals has been encouraged more especially through the publication by the King's Fund of an annual statistical report showing the cost of working at different hospitals, and it is pleasant to note that our own hospital is one of the most economically conducted of the group.

Not the least of the services of the Fund has been its function in arousing interest in the hospitals amongst the working-class population through the establishment of the Hospital Saving Association which in its last report, 1926, showed an income of £150,000 a year. What is of even more importance than the money subscribed is the intimate affection awakened in the hospital-patient class by a wider knowledge of hospital problems looked at from their own point of view. The affection with which the class most helped by the hospitals regards the voluntary system was singularly demonstrated in the course of an appeal conducted in 1922 on behalf of the voluntary hospitals by the Educational Auxiliary Committee. Delegates were appointed from various educational bodies to serve upon this committee, and I was the representative of London University and had the good fortune to be appointed chairman of the Teaching Hospitals Subcommittee of that appeal. It was a poignant satisfaction to me as a hospital physician to note during the course of these investigations how deeply based was the confidence in the hospitals among all classes of the community, and very especially amongst the poorest of our people. If the poor could have their way there is little doubt indeed of the survival of the voluntary system.

The voluntary hospital is built upon humanity and the human interest is what keeps it the fresh and lovely thing it is. All of its component elements give of their best, freely and without reward. A great Admiralty lawyer, whom I knew well, found time from his busy practice to spend not less than two afternoons a week in the service of the hospital upon the board of which he was a member. The keynote of the whole system is voluntary service, which becomes a passion to those who give it. That evasive thing atmosphere emanates from these individual acts; medical staff, nurses, lay workers, students, all become imbued with the same ideal. An esprit de corps crystallises out which breeds an intense patriotism narrow if you like, but very potent for good. Let me give you an instance. A medical school just failed to become inscribed as a unit school, and was left consequently without the Government grant accorded to unit schools. The medical staff met this position with true British resourcefulness. They doubled their service to the hospital, they formed a unit conducted without pay. They had their reward in a school so flourishing as to compete quite successfully with the unit schools. Naturally such an effort demanded

sacrifice, and the most brilliant member of the staff, it was currently known, died from overwork at a comparatively early age. Would such an effort have been forthcoming under the ægis of a Government department? I think not.

The teaching hospitals are the flower of the whole voluntary-hospital system of this country, and the second great purpose served by hospitals, the education of students and nurses, would certainly suffer an unhappy change under State-aided control. They have for the past 200 years attracted to their medical service the ablest men and women in the profession. By the character of these workers and not by the surroundings in which they work, the teaching hospitals have become the great outposts of scientific advances in medicine and surgery, which within the present generation of men have so largely transformed the lives of all of us.

LISTER'S EXAMPLE.

A few months ago celebrations, world-wide in their extent, marked the centenary anniversary of the birth of Joseph Lister. Those of us who are old enough to remember, however faintly, the conditions which prevailed in our hospitals, even the most advanced of them, before the epoch-making discovery of Lister, can best gauge the beneficent revolution which he effected. Lister received his early training in London schools of medicine and ended his long and honoured life as a member of the staff of one of them. To-day, if there is no genius comparable to Lister, and where indeed can we hope to find his equal, there is a thousandfold greater army of research workers than was possible in his day. New methods of science have received an immense stimulus from his invention and from his example, and have provided far more precise means of investigation than ever before, in which our teaching hospitals have throughout taken the leading part, so that nowadays we have progressed far beyond the conceptions which prevailed at the end of the 19th century, when the medical schools were looked upon as little more than incumbrances to the hospitals and when voluntary subscriptions were often jealously safeguarded from any possibility of being used in the promotion of medical teaching or research. Besides acting as an ever-open asylum for the sick poor, the teaching hospitals have thus become the greatest schools in the world for the advancement of medical science.

The estimation in which the teaching hospital is held is, in fact, best demonstrated by the ambition and desire of the Poor-law infirmaries to imitate it as closely as possible, and their highest pride is to become affiliated to one or other of the voluntary institutions. We at St. Mary's have been fortunate in coming to a working arrangement with the Paddington Infirmary, with mutual benefit to both institutions. The fusion of these two distinct services, the Poor-law infirmary and the teaching hospital into one whole, would, I feel certain, be a retrograde step, for their objects are different; but it is, on the other hand, an unfortunate fact that the infirmaries have not been sufficiently made use of for the purpose of teaching, and an extension of the experiment which we have tried at St. Mary's of a loosely knit connexion between hospital and infirmary should be widely repeated.

INCREASING DEMAND ON THE VOLUNTARY HOSPITALS.

The very excellence of the treatment now obtainable in voluntary hospitals has been to some extent their own undoing; the waiting-lists for admission to these institutions are getting ever larger, whereas numerous beds are permanently empty at the Poor-law hospitals. A class is clamouring for treatment in voluntary hospitals which was never willing previously to consider such treatment as a possibility, and the necessity to meet the demands of the middle class for hospital service has become very insistent. Our own hospital, with its ready adaptation to calls upon it, is considering very carefully the problem of providing paying beds. There are two views held as to the propriety of setting apart part of the accommodation at voluntary hospitals founded for the relief of the sick poor for the reception of patients who cannot wholly deserve this appellation. The experiment has been in operation for some years at some other hospitals.

THE MIDDLE CLASSES AND MEDICAL TREATMENT.

It has always been something of an anomaly that the best medical attention in this country under present conditions can be obtained only by two classes, the rich and the poor, and both classes are attended by practically the same medical advisers. A member of the staff of a great hospital practically divides his day between these two classes; half of his time will be spent in tending the sick poor, for which he gets paid nothing, and the other half in gleaning from the rich the means which enable him to devote himself to his profession and at the same time to succour the poor without fee. But the middle class remains outside of this system altogether. The conditions of modern medicine, which necessarily entail team work—that is to say, the examination of the patient by numerous specialists—deprive the middle-class patient, as a rule, of the full benefits of proper examination, and consequently of proper treatment. Upon the middle class lies nearly the whole financial burden of our country, and it is, in my opinion, high time that some provision was made for their proper medical treatment. The rich have perhaps not fully recognised the part which the voluntary hospitals in reality play in providing themselves with the first-rate medical advisers which their money can command, for these advisers win their experience and their skill by their work at the voluntary hospitals. A wider extension of hospital propaganda would probably secure consideration from this class which is best able to give. What can be done by generous donations may be exemplified in the splendid Wells bequest, administered by the King's Fund, which was almost wholly responsible for the additional 1200 beds to which I have drawn attention. It might perhaps be usefully pointed out to wealthy donors that the Chancellor of the Exchequer, incredible as it may sound, actually makes a concession to hospital subscribers who promise an annual donation for at least seven years; the amount of these subscriptions may be deducted from income-tax returns and, perhaps a still more important fact, from the super tax which is so especially aimed at the very rich.

Indeed, propaganda is one of the most urgent necessities of the position, and if praiseworthy needs are explained to the public, the public quite astonishingly generously responds. Our own hospital has obtained by an appeal privately conducted the large sum of £40,000 within a few months, and the cost of collecting this very considerable amount has been less than 2*d.* in the £. St. Bartholomew's Hospital is building a great new surgical block, money for which appears to be forthcoming without difficulty. Under the voluntary system the expenditure of the money received is probably more economical and more sensibly guided than under any other system. Again, the spur of competition in wise management comes into play, and donors may be completely confident that the money they give will be spent in the very best possible way for the relief of suffering, the promotion of medical science, and the immense amelioration of the health and comfort of the whole country.

BUREAUCRATIC IDEALS.

In a State so impoverished as ours at the present time the purposes for which money is used become of primary importance. The bureaucrat spending other people's money is proverbially lavish; too often he is obsessed with megalomania, and bricks and mortar are his fetish. Prof. Hey Groves, who seems imbued with bureaucratic ideals, clamours for "hospitals of a thousand beds," supported by the rates, but money spent upon buildings must be subtracted from money spent upon the more vital needs of the time, medical research and improved methods of treatment, and the value of a laboratory, to take a single example, is not necessarily dependent upon the magnificence of its

installation. Leonard Hill once made a very telling reply to a University administrator who was condemning a certain famous laboratory for its scanty accommodation and equipment. Helmholtz, he said, had made his epoch-creating discoveries in crystallisation by working out the conformation of crystals with models made with his own hands out of wires and corks. Here, as always, it is the spirit that counts and not the material with which that spirit works. It is better to have A1 workers in C3 laboratories than C3 workers in A1 laboratories; the man is more important than the aids which he uses. Public departments are apt to pamper the official and to starve the scientific worker. In Budapest, which I visited in 1913, the medical clinics were entirely financed by the Government. I saw a magnificent building provided for the dermatological department; but the scientific workers in it were receiving salaries which could only be described as pitiable—e.g., the chef-de-service, a first-class medical histologist, after 18 years' service was getting less than £200 a year. One of the first results, therefore, of change of control of the hospitals would be to magnify out of all proportion the material as against the man, and inasmuch as there is no large margin of money available, real research would inevitably be sacrificed to the provision of bricks and mortar and the multiplication of paid Government officials.

It is to be borne in mind by all concerned that the alternative to the voluntary system is exactly this bureaucratic control which would necessarily be many times more expensive. Prof. Hey Groves shares the innocent delusion of the Socialist in our midst, that "somebody else" would always supply the money. He writes: "If the profession stood four-square and told the country that our voluntary hospital system was essentially bad, then the money would be forthcoming just as readily as it was for education or the National Insurance scheme." He forgets, however, to ask who pays for these expensive provisions. The "country" is nothing but the ratepayers—i.e., "ourselves of the middle classes"—and a further addition to the crushing rates now almost entirely borne by those classes might quite conceivably bring our whole body politic crashing down. Mr. Brock, the Secretary of the Voluntary Hospitals Commission, acutely points out that nearly the whole burden of the voluntary hospitals is borne by the middle classes, those classes who have the least direct benefit from the hospitals, and that a subtle change has been overtaking us in that, with the immense extension of insurance benefits that every political party has practised within the last few years, the "necessitous poor" have been largely eliminated; the burden of that elimination again has been mainly borne by the middle classes, but there are not wanting signs that those "patient oxen" are reaching the end of their tolerance of these conditions.

PAYING BEDS.

The provision of paying beds at the hospitals serves a twofold purpose. (1) It goes some way towards meeting the changed condition of the middle classes who are taxed almost out of existence and who alone of our community do not in fact obtain the best medical aid although they are the chief means of providing it for others. For the average middle-class man a major operation for an acute illness is a financial disaster from which it may take him years to recover. Nowadays it is expensive to be born and often not less expensive to die, but a prolonged recovery is more costly still. These conditions have come about from the change in medical practice; it is no longer possible for one man to deal faithfully with any but the simplest medical cases, and the provision of many experts is necessarily expensive. (2) It is not proposed to make a profit out of these beds, but they do pay all expenses, both of building and of medical service. If and when the voluntary contributions to a hospital allow of its doing so, these beds could revert to the poorer classes again and new provision be made for paying beds if the need should still exist.

While it is true, as the objectors to the voluntar system emphasise, that the hospitals are now solver partly because contributions are asked for from near all who use them except the very poor, it must b remembered that the control of the hospitals rests wit the voluntary staff. Under the State-controlle system conditions would be entirely different, and th management would pass into the hands of bureaucrat officials who would be tied up in regulations and re tape, and would not have the knowledge to deal wit the problems of sickness that the present admini trators so abundantly possess.

THE HOSPITALS AND MEDICAL EDUCATION.

I must dwell a little more upon the aspect which of most direct interest perhaps to the present audienc —namely, the part played by the teaching hospita in medical education, both of doctors and nurses. L us take the last point first. In my student days th sisters and nurses were largely drawn from the upp domestic-servant class. They were often very worth women for routine work, but their lack of educatio and intelligence hampered the doctor at every turn We owe it to the voluntary hospitals that Sarey Gam has been finally dispossessed by Florence Nightingale

The part played by the hospitals in advancin medical knowledge is little appreciated by the publi Any medical discovery made by a medical man regarded as a matter of course. The epoch-makin inventions of anæsthesia and of antiseptic surger which had their origin at teaching hospitals, hav changed the whole face of medicine and of surgery one generation. These discoveries stand out, bu there is an enormous imperceptible movement forward of medical knowledge as the result of the experience doctors working in the hospitals, and the benefit that experience is shared with all the world. Th voluntary system is practically peculiar to th country. It suits the genius of our people, which always individualistic, far better than the Stat controlled institution. Under the voluntary syste our medical schools, because they have attracted th best brains in the profession, have become the mo famous centres of medical education that the wor knows, and more especially in the practical art medicine in which Englishmen have taken the leadin place since the time of Sydenham. Under our syste of teaching the British general medical practitioner easily the best trained in the world, as the war ver clearly demonstrated. The acid test of efficiency readiness of adaptation. "Our surgeons," sa MacPhail, "performed the most delicate and profoun surgery in field ambulances and casualty clearin stations, upon trestles in huts or open tents, with on the heat from a brazier and not even running water They were able to bend their means to their nee because they were trained by direct contact wit actuality in the admirable British way which learned in hospital schools.

Side by side with this ancient institution of volu tary hospitals—and the oldest voluntary hospita are over 800 years old—there has grown up wi increasing frequency in later years another set institutions, the Poor-law hospitals, formerly infi maries, whose resources are derived from the rates, an much searching of heart is obvious in the medic profession at the present time as to the ultimate fa of the voluntary hospitals in competition with the rate-aided institutions. At the present time th Poor-law hospitals are under the management Boards of Guardians. Mr. Neville Chamberla proposes some time next session to bring befo Parliament a measure which will transfer the contr of these hospitals to local municipal authorities; in th case of London to the London County Council.

STATE-CONTROLLED HOSPITALS.

This is a very bureaucratic age, and the encroac ments of bureaucracy upon all our institutions h never been more insistent or menacing. The voluntar hospitals shine out as some of the last great foundatio to remain essentially untrammelled by State inte

rence. Are they destined in their turn to yield to at ever overwhelming tide of State control, and ould they better serve the needs they exist to satisfy they ceased to be voluntary and became subject to overnment or municipal control? It must be membered that the Poor-law infirmaries have been existence for very many years and have not been nspicuously successful in winning the affection of e patients treated nor in the advancement of medical ience. Those of us who had experience of State-ntrolled hospitals during the war were, I think, pressed by the absence of elasticity and initiative those institutions. When the War Office wanted 0 wounded soldiers to be suddenly admitted to spital in a grave emergency they appealed not to eir own State hospitals, but to the voluntary London spital, which, because of the resilience resulting m voluntary management, was able within hours to convert 300 of its beds for military rposes. Prof. Hey Groves has made himself the ampion of the State-aided and State-controlled spital. He was obviously entirely unaware of the ual position of the voluntary hospitals as regards eir present financial and moral stability, for he clared "the system is not dead, but moribund, and i laboured life is kept going by stimulants and ificial respiration." This premiss, upon which he ses his attack, I think has been demonstrated to be sound by the figures I have given.

Prof. Hey Groves, like many other persons in ts age, seems to be obsessed by the material as posed to the spiritual, forgetful of the old Greek age that the strength of a city lies in its men, in its walls. He ascribes to what the Americans turesquely call "plant" more importance appa-rtly than to the quality of teaching. There is a shing attack upon what one might call this American ception by Sir Andrew MacPhail.[1] Dealing with erican methods of medical education he says: "To Americans a school too often means buildings, uipment and machinery . . . To English teachers, d in the tradition of our great voluntary hospitals, medical school derives its virtue from the quality the human beings who teach or learn in the school." e difference of outlook is cardinal. It is a matter of dition and sentiment, about which there is no ument. This dependence upon external adventi-is aids has been satirised by MacPhail as an lication of the American method in business, ch he sums up as "uniformity, single standard, ss production; what may be called the mechanical hod." "Under this system," he says, "the surgeon ws the patient merely as an arrangement of type-tten cards, he sees him for the first time uncon-ous upon the table, when he comes, like a masked ecutioner, to complete the sentence of the judge." Canadian surgeon whom I met on a voyage some rs ago gave me a mirthful description of an erience he had had in an American operating-tre. He told me that he had been taken into the e-room by the operator, where all the participators e stripped to the skin, scrubbed all over with nail-shes and soap, then clothed in sterilised pyjamas, the cohort thus prepared waded barefoot into the tre in a sea of antiseptics. The Canadian surgeon, nconsiderable authority himself, took the trouble xamine the statistics of the American operator as pared with his own, which were in the same field ractice, and was comforted to find that his own res compared extremely favourably with those of olleague.

rof. Hey Groves attempts to support his ment for what one may call the municipalisa- of the voluntary hospitals upon the advantages laims for the control of education by the State. seems to me that this parallel is singularly rtunate for his thesis. There is a wide-ad present uneasiness as to the results of this icular experiment in education, the expense which has become a most formidable and ever-augmenting strain upon our community, and the results of which are by no means commensurate with the fantastic cost. It so happens that within the last few days a convincing object-lesson has been furnished of the disastrous results upon secondary school education of the extension of municipal or depart-mental control of schools. A public school in Sheffield, King Edward VII. School, found itself in difficulties with the Sheffield City Council which had been captured a short time previously by the Labour Party, who used their majority to dissolve the independent governing body of the school and to place it under the control of the "Secondary School Sectional Sub-Committee," that is to say, under municipal control. The immediate result was that the Headmasters' Conference removed the school from its list of accredited public schools, and the headmaster himself, a man of great distinction, resigned his appointment. The headmaster of Harrow, commenting upon this incident, makes some observations very pertinent to my present thesis. "Schools," he says, "are living things; they are not machine-made, mass-produced shops for the sale of instruction." "Every great school is the expression of human personalities, whose work cannot be fruitful to the utmost unless it is devoted to the service of a school whose individuality is felt to be both real and free to develop on lines not necessarily prescribed. But this sense of individuality is lost when a school becomes one of a mass, all nominally responsible to an education committee of changing membership, which is itself largely in the hands of its director."

The estimation in which State-aided education is actually held may be best gauged by the individual man's actions. As soon as a man in any walk of life is able to afford it he sends his children to be educated, not at the council (State-aided) schools, but at the public (voluntary) schools.

CONCLUSION.

I would sum up the position, therefore, in the following way:—

1. The voluntary hospitals have actually turned the corner of their fate and are more solvent at the present moment than they have ever been in recent history.

2. The voluntary hospitals have won the affection and confidence of the whole community in a way which would not be likely to be achieved by any other institution.

3. In their advancement of medical science the voluntary hospitals have immeasurably outdistanced Poor-law infirmaries who have been their competitors for a sufficiently long time to allow of conclusions being drawn from that competition.

4. The voluntary hospitals command a tradition of service which cannot be imitated by any institutions lacking their long organic growth.

5. The administration of the voluntary system is incomparably cheaper, because it is voluntary, than any State-controlled system could be. Moreover, the purposes to which money under State control would be applied would probably not be the same as those upon which voluntary hospitals are concentrated. They would be inferior purposes in every case, and the waste of money consequently would be even more disastrous than the actual expenditure would indicate.

6. The voluntary hospitals are the growth of centuries, moulded to their uses in each generation, and representing the sturdiest of English characteristics, that of self-help; while State institutions are the product of a weak-kneed generation, ever more and more dependent upon that nebulous abstraction, the State, a dependence which unhappily so often means in practice the glorification of the art of sponging, as witnessed by that most formidable incubus of modern days, the unemployed dole.

These are the propositions to which I invite your assent and, if I win it, your resolve that you will help by every means in your power to maintain the voluntary hospitals, to which you all owe so much.

[1] Brit. Med. Jour., Sept. 3rd.

An Address
ON
INSOMNIA.

Delivered before the Medical Society of London on Dec. 12th, 1927,

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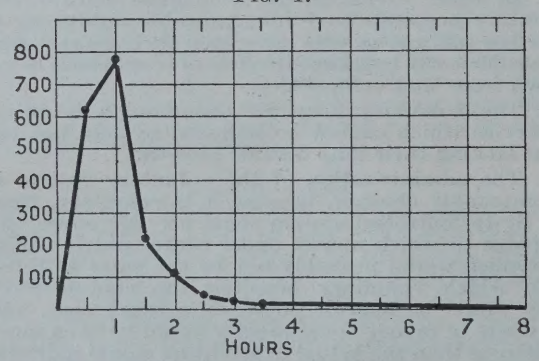
SLEEP has been defined as "a period of rest for the body and mind, during which volition and consciousness are in partial or complete abeyance and bodily functions partially suspended." (Dorland.) One writer speaks of sleep as a habit, another says it is a function of the whole brain if not of the whole body. (Wechsler.)

Some physiologists say that sleep is more necessary than food, that "a man can fast for four or five weeks, but if forced to do without sleep he will die in a few days." (Lyle and De Souza.) But Dana says, "Man can exist without sleep for about the same time that he can do without food—viz., three or four weeks—but he cannot live without it." Experiments by Piéron showed that young dogs deprived of sleep died in from four to six days, but Kleitman, of Chicago, and his colleagues deprived themselves of sleep for periods of from 40 to 115 hours, and with the exception of intense drowsiness, remained remarkably normal. During these periods the blood, urine, and fæces were examined, the heart, pulse, blood pressure, respiration, appetite, digestion, basal metabolism, and reflexes were all observed, "and," says Halliburton, "any departures from the normal, if present at all, were trivial."

NORMAL SLEEP AND ITS POSSIBLE CAUSES.

In normal sleep the most striking and important fact is the partial or complete loss of consciousness, due undoubtedly to the lessened activity of the brain tissue and particularly of the cortex cerebri. The power to make conscious movements is first lost, and the use of the special senses disappears. The first of these to go is vision, the last hearing. During

FIG. 1.

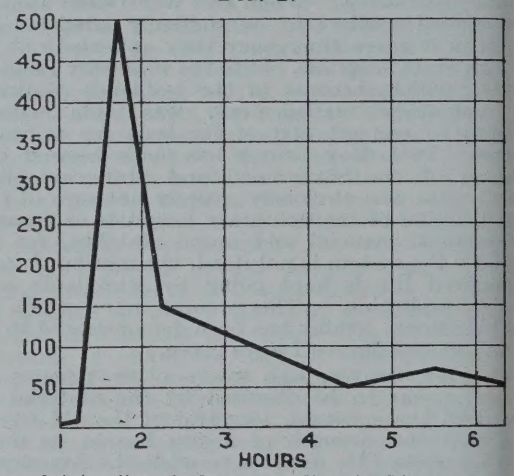


Curve illustrating the strength of an auditory stimulus (a ball falling from a height) necessary to awaken a sleeping person. The tests were made at half-hour intervals, and the curve shows that the distance through which it was necessary to drop the ball increased during the first hour, and then diminished, at first very rapidly, then slowly. (Modified from Howell's "Text-book of Physiology," tenth edition, p. 262. Published by W. B. Saunders Company.)

sleep hearing is the most easily excited sense, the sense of touch is more difficult to arouse, and taste and smell still more difficult. All voluntary muscles are relaxed. Respiration becomes deeper and slower and tends to rise and fall as in Cheyne-Stokes respiration. The secretion of urine, tears, and mucus are all diminished. When the sleepy child rubs its eyes it does so because the secretion of tears is becoming less and making its eyes feel gritty. Pulse frequen is lessened, blood pressure falls, the knee-jerks a entirely lost, and the Babinski sign becomes positi All these point to inactivity of the cerebral cortex.

A very important point in normal sleep is t variation in its intensity. This has been investigat by many observers, Kohlschütter, Czerny, How and Michelson, to mention a few. Their investig tions were made by finding, at regular interv during sleep, the intensity of auditory stimuli requir to cause waking. It was found that there was

FIG. 2.



Curve of intensity of sleep according to Mönninghoff a Piesbergen. The figures along the ordinate show the relat intensity of sleep, measured in milligramme-millimetr expressing the intensity of the sound, caused by a falli body, necessary to awaken the sleeper. (Modified fr Howell's "Text-book of Physiology," p. 264.)

rapid increase in the intensity of sleep during t first two hours of slumber, which reached its highe point between the first and second hours, and th dropped very rapidly again, so that by the third ho the sleeper was very near the margin of consciou ness. From that point onwards the depth of sle gradually became less until waking occurred. Th is well shown graphically in Kohlschütter's cha (Fig. 1). Mönninghoff and Piesbergen, in simil experiments, observed a second rise in the intensi of sleep during the sixth hour (Fig. 2), and Czer shows a very much greater rise from the seventh the eleventh hours in a child of 3 years old.

Many physiological explanations or theories of t cause or causes of sleep have been put forwar Preyer and Obersteiner attribute sleep to fatigue the brain cells, caused by the accumulation of ac waste-products in the blood. Pflüger suggests th it is due to gradual consumption, during the waki hours, of the intramolecular oxygen in the brain cel whilst Duval, Cajal, and others suppose that t cortical cells are cut off from incoming impulses contraction of their dendrons.

A number of writers attribute sleep to the form tion of a special toxin, which accumulates in t blood during waking hours, and finally inhibits t activity of the cortical cells. There are also t inhibitory theories of Pavlov and Shephard. T floor of the third ventricle, the aqueduct of Sylviu and the pineal gland have all been considered playing an important part in the production of slee But the one important fact would appear to be t cerebral anæmia which exists during sleep. Howe Mosso, and others have demonstrated by plethysm graphic observations that in sleep the volume of t limbs is increased. Arterial pressure is known fall, and Hooker has shown that venous pressure al falls, and that a venous pulse may be observed the hand, indicating a dilatation of the cutaneo arteries. More blood, then, is circulating in t limbs than during the waking state, and the volun of blood remaining the same there must be less blo

in the brain, and observations of the brain itself through a trephine wound have shown that its volume is decreased during sleep. Sachs and Hausman, in their book on "Nervous and Mental Disorders," say, "It is generally admitted that a very important factor is the cerebral anæmia during sleep. As soon as we go beyond these facts we are indulging in pure speculation."

INTERFERENCE WITH SLEEP.

The periodical recurrence of sleep would appear to be due to fatigue of, and therefore lessened activity of, the vaso-motor centre in the medulla brought about by its continuous activity during the waking hours. If we bear in mind the important phenomena of sleep to which I have drawn attention, the nice adjustment of the circulation, the fall in blood pressure, the dilatation of cutaneous blood-vessels, the slowing of the heart and respiration, the rapid rise, and also the equally rapid fall in the intensity of sleep, and the varying degree of loss of the special senses, we can, I think, form a useful idea of the causes of some of the varieties of insomnia and perhaps of their rational treatment. Some of these experiments also, I think, tend to show that insomnia in a healthy adult produces less serious results than insomnia in the young.

Anything which upsets the nice readjustment of blood distribution may give rise to insomnia. Anything which maintains the activity of that most easily aroused special sense—hearing—or the next most easily activated—touch—also anything which keeps up mental, and therefore cerebral, activity, for this demands adequate blood-supply to the brain, will tend to cause sleeplessness. And so it is easy to understand that insomnia will arise in states of excitement, worry, anxiety or emotion of any kind, in pain, in fever, in cases of heart disease, respiratory disease, and in cases showing extremes of arterial pressure from whatever cause. We have many of us no doubt experienced the insomnia which is brought about by a sudden change in atmospheric pressure when rapidly ascending to a considerable altitude, and again on descending to a much lower level. I can well remember going up to the snow-line from Montreux in one day and being completely sleepless that night, and again being equally sleepless when descending again to Geneva.

The indifferent night's sleep obtained on the first night in a strange bed is due, I think, largely to unaccustomed touch sensations conveyed by the bed and bedding.

NOISE AND CONSCIOUSNESS.

A very common complaint nowadays is, "I go to sleep whenever I get into bed and sleep soundly for two or three hours, then I wake up and cannot get to sleep again until the early morning." (I think the writer of the Book of Proverbs must have suffered thus when he wrote, "He that blesseth his friend with a loud voice, rising early in the morning, it shall be counted a curse to him."—Prov. xxvii. 14.) In the almost ceaseless noise of a great city like London this waking after some two hours of sound sleep is not remarkable. Those of us who, not infrequently, have to be at work during the night know that the noise of traffic does not die down, for I think it never ceases entirely much before 3 o'clock in the morning. The person who goes to sleep, say, at 11 P.M. at 1 or 1.30 A.M. suffers from that drop in the intensity of sleep which is illustrated in Figs. 1 and 2, and is kept awake by the traffic until the noise is somewhat reduced and the second rise in the intensity of sleep is due.

Others complain that, to use a very expressive Scottish phrase, they "cannot catch their sleep" when they settle down in bed. These people lie awake for an hour or two after which they often fall very soundly asleep and so remain until "called" in the morning. I know a lady who goes to bed regularly at midnight and never falls asleep until 3 A.M., but from that hour until 8 A.M. she sleeps so soundly that this five hours of sleep is quite sufficient for her.

Then there are those who, sleeping for the first two or three hours wake and remain awake, failing to fall asleep again during the early morning, and, lastly, there are many who complain of sleep repeatedly disturbed by dreams. These are always or repeatedly near to the margin of consciousness, whose sleep is never sound and never restful.

Complete and entire absence of sleep is very rare excepting in acute illness, painful diseases, or those neuropathic and psychopathic conditions which will be dealt with by those who follow me to-night. Insomnia in any of these forms may arise in conditions of ill-health, trivial or serious, and its treatment is the treatment of this underlying cause. Those who, without any ascertainable ill-health, habitually wake after two or three hours' sleep and lie awake, I sometimes advise to go to bed an hour or two later and rise at a correspondingly later hour. In this way, and particularly if they live, as I do, on a main traffic route, their insomnia is overcome or avoided. For I have found for myself that it is little good my being in bed in London before midnight. The traffic invariably wakes me at about 2.45 A.M., but the decrease in its volume after that hour allows me to fall asleep again and sleep until morning. I seldom sleep throughout the entire night in London, but I seldom wake during the night in the quiet of the country.

SOME COMMON CAUSES OF SLEEPLESSNESS.

This waking in the middle of the night is common in the debilitated and the aged. It is common in those who take too little food, or who take their evening meal very early. It is common in those with very low blood pressure from whatever cause, as is also the inability to fall asleep in the first instance. An extreme example was that of a lady sent to me by the Society for the Relief of Necessitous Gentlewomen, to which I am physician. Owing to sheer poverty this patient's daily food allowance, proved upon inquiry, to be one cup of soup, two or three of tea, and a few slices of bread and margarine. Her chief complaint was that she slept for only two hours in the early part of the night. Her systolic blood pressure was 110. She showed no signs of disease, and her insomnia disappeared when she had been provided with adequate food.

An alteration in the hour at which the last meal is taken is sometimes important, and in the case of the aged and debilitated, some hot liquid food in the middle of the night, milk, or one of the patent foods, will often act as a soporific. In the case of patients with very low blood pressure who wake thus, I have not infrequently found that a cup of hot tea or coffee will enable them to sleep again, I suppose by raising the blood pressure. Any of these can easily be placed in a thermos flask at the bedside.

It is hardly necessary here to speak of many of the common causes of sleeplessness—the late supper or heavy dinner, too much alcohol or too much tobacco, the taking of coffee or tea in the evening, overwork or working until near bedtime, sleeping in a room which is too hot, badly ventilated, or too cold, lying with the head too low and perhaps in some cases too high, wearing too much clothing at night, being overburdened with bedclothes, or being too cold in bed. All precautions regarding these would appear to be matters of ordinary common sense, yet we are all so accustomed to find this quality lacking, even among educated persons, that it is necessary to pay particular attention to these details, and even to see that a suitable and proper type of bed is being used. For my own part, I prefer the box-spring type of bed to any other.

It is well never to accept a complaint of insomnia without very careful investigation. Only a few days ago a lady consulted me, complaining of complete loss of sleep. She affirmed repeatedly that she got no sleep at all, but under rather severe cross-examination she had to admit that she got five hours of sleep every night, and a middle-aged, valetudinarian gentleman, who made a similar statement, was found, when a nurse was employed to record his hours of slumber, to sleep regularly for 7½ hours.

SUGGESTIONS FOR TREATMENT.

The treatment of sleeplessness due to pain or painful conditions is so obviously the treatment of the cause of pain as to be outside the scope of this discussion, but I may perhaps be pardoned for referring to one or two remedies which may relieve pain and admit of sleep.

Many kinds of pain are relieved by a dose or two of aspirin. The pain in a carious tooth with an exposed pulp cavity is promptly relieved by the application of a little pure carbolic acid on a tiny pledget of wool, and even the misery of a dental abscess may be relieved sufficiently to permit of sleep by the application to the face of the old household remedy, a pepper plaster, made by soaking a piece of thick flannel in brandy, peppering it freely by means of the pepper-pot, and tying it on to the face—pepper to skin. It can be left on all night without fear of blistering or marking the skin. Pruritus ani and pruritus vulvæ can often be best relieved by the application of a conium ointment which, if necessary, can be prepared with double the quantity of succus conii in the Pharmacopœial ointment.

Insomnia occurring in patients with hyperpiesis, particularly in chronic renal disease, may be relieved by a good dose of calomel, which, as long ago pointed out by the late Sir William Broadbent, acts as an hypnotic long before it acts as a purgative. A hot bath immediately before going to bed will help some patients to sleep, chiefly those with too high blood pressure, and in those with very low blood pressure strychnine given two or three times a day is often of great service. The sleeplessness in advanced mitral disease with engorgement of the liver is often very much relieved by placing as many as a dozen leeches over the hepatic region. Leeching has gone very much out of fashion of late, which I think is a pity. In the dreadful headache and insomnia following severe cerebral concussion, nothing gives such relief as a couple of leeches on each temple or behind each ear.

HYPNOTICS.

So far I have made no mention of hypnotics because, I am sure, it will be agreed that we should avoid the use of these drugs in the treatment of insomnia if that be possible. But there are cases in which the sleeplessness itself is causing such havoc that these must be given. We must not let the patient die or go out of his mind whilst we are endeavouring to cure the disease causing his sleeplessness. Sometimes the original cause of the insomnia having been removed the condition remains as a sort of bad habit.

In my early days we had comparatively few hypnotic drugs to choose from. Now their name is legion, but I am not at all convinced that the newer remedies are the best. The bromides are, I think, invaluable, and combined with chloral hydrate form an excellent and safe sleeping-draught in a very great many cases. Insomnia is not common in children excepting in conditions of obvious illness which is its cause, but when it is necessary to give a child an hypnotic it is well to remember that they can take both bromide and chloral, even in early infancy, safely and with good effect. Again, one is often called upon to prescribe a sleeping-draught for wife or mother worn out and sleepless with long watching, nursing, anxiety, or sorrow. Nothing acts so well or so safely as bromide and chloral.

In the cases where the patient sleeps for two or three hours, then wakes and lies awake for hours, a dose of one of the bromides at bedtime on several successive nights will sometimes effect a cure. But often in these cases a dose of sulphonal at bedtime acts well. Sulphonal takes a long time to produce sleep. If the dose is timed properly it will produce its effect at about the time the patient would otherwise wake. If the insomnia of this type has become a bad habit, the cause having long since been removed, a dose of sulphonal, given thus on three successive nights, will not infrequently effect a permanent cure. Where a patient is long in going to sleep, sleeps for only a short time, then remains awake for hours, a combination of trional and sulphonal is often useful. The trional sends him to sleep and, later, the sulphonal keeps him asleep.

Veronal I am not very fond of. It has sometimes seemed to me to be more toxic than many of these barbituric acid derivatives, all of which I have found to be unduly so in patients suffering from a toxæmia of any kind, and particularly that occurring in or arising from renal disease.

Aspirin will often act as a producer of sleep, in my opinion probably by causing a dilatation of peripheral vessels. It is often of great value in the pain and discomfort following a surgical operation. It is safe; it can be given by the bowel. I do not know that it has any undesirable after-effects, and even if the patient does develop an aspirin habit it is not a very serious matter.

OPIUM.

But opium and its derivatives must remain for all time the great pain-killers, and in painful conditions the great sleep-producers. In proper cases they are invaluable. Morphia in one form or another, and in many cases combined with atropine, is the one safe hypnotic in serious heart disease, acute pneumonia, and, following the major surgical operations, severe injuries and shock.

There used to be a prejudice—I do not know whether it still exists—against the use of morphia for the dreadful insomnia of delirium tremens. But I am not sure that in delirium tremens hypnotics poured into a hopelessly disordered stomach in dose after dose do not lie unabsorbed until, with commencing recovery, they are all absorbed at once, poisoning the patient. Would not morphia given hypodermically be both safer and more effectual? Again, it used to be taught that it was not safe to give morphia and bromide together. Is this so? Is hyoscine a good remedy in delirium tremens? I have found it of the greatest service in some cases of insomnia, and it has this great advantage, that it can be administered without the patient knowing that any hypnotic has been given. The following is a typical case:—

> Shortly after the war a young war widow living in an hotel was robbed one night whilst at dinner of all the trinkets her late husband had given her, together with the personal belongings of his which had been sent to her from France after his death—his watch, his signet ring, and the rest. Already depressed and "nervy" she completely broke down, and was treated for some days by other women in the hotel, chiefly with stimulants and sympathy. After she had been under treatment in a nursing home for some time and was much better, she remained sleepless. In her last cup of hot milk at night, for several nights, was dissolved gr. 1/150 of hyoscine hydrobromide. Her insomnia was soon cured, and her confidence in herself restored, because she thought that her sleep was quite natural. For very long, after this nightly dose of hyoscine had been omitted, she continued to take her cup of milk, satisfied that it would send her to sleep.

It is a very great advantage, when hypnotics have to be administered, to be able to give them without the patient's knowledge, but this, as a rule, can only be accomplished in acute or serious illness and with the help of a tactful nurse. But I always make every endeavour not to give a patient a prescription for any of these remedies. I prefer to give him two or three tabloids, tell him when and how to take them, and to return next day and report the effect. The dose can then be repeated or not as desired.

I have said little or nothing about the more serious forms of insomnia. It is hardly necessary to remark that whenever complaint is made of insomnia—and especially when we meet with that condition of complete insomnia for which the Romans had the more expressive term, exsomnia—we must be very carefully on the look-out for serious disease. And finally I would say, when treating insomnia, it is always a mistake to give hypnotic drugs until there is no doubt that they are really required.

VACCINE TREATMENT OF IMPLANTED TUMOURS IN THE RAT.

SUBSEQUENT IMMUNITY.

BY THOMAS LUMSDEN, M.D. ABERD.

(From the Department of Experimental Pathology, Lister Institute, London.)

IN previous communications[1] the following facts have been reported: 1. Specific antisera can be produced which kill cancer cells cultured in vitro without damaging cultures of normal tissues. 2. When applied under specially favourable conditions to certain implanted tumours in the living animal, such antisera not only cause regression of the treated tumour, but of a coexisting untreated tumour as well. Animals so cured are immune to subsequent inoculations of the tumour concerned. 3. The mechanism of this immunity has been demonstrated to be due to the presence of antibodies in the serum of the immune animal. These, however, only become effective in the animal which produced them, when aided by some excretion from extravasated leucocytes. It may, therefore, be accepted that animals can acquire an immunity against tumours comparable in many ways to immunity against bacteria. Mere excision of a tumour does not evoke such immunity, nor does gross local destruction of a growth by powerful poisons. In the latter case destruction of the cells has apparently gone too far, so that not only their vitality but also their antigenic factors have been destroyed. Many attempts were made to attenuate tumour fragments by means of heat, cold, antiserum, ether, distilled water, and other agents in such a way that they should lose their infectivity while retaining their antigenic power. As previously reported, these attempts were almost always unsuccessful. It was found impossible to accomplish the appropriate degree of damage; either the fragments were insufficiently attenuated and gave rise to tumours when inoculated into animals, or the process of destruction was carried too far, the antigenic factor in the cells was destroyed, and no immunity was evoked. There was still a hope that (on the analogy of bacterial vaccines) if some reagent could be employed, the intensity of whose action could be graded so as just to kill the malignant cells, without at the same time altering them chemically so much as to do away with their antigenic properties, the injection of these cells might immunise an animal and perhaps even cause regression and cure of a growing tumour.

Formalin, which is used for a similar purpose in the preparation of bacterial vaccines, suggested itself as a suitable reagent for this purpose on account of the fact that it kills and fixes cells without altering greatly their chemical constitution. There was also the possibility that formalin might preserve the antigenic factor in the cells in such a way as to prevent it from altering seriously during the period which must elapse after inoculation into the body and before absorption into the blood takes place.

The present paper deals with the investigation of these possibilities.

Methods and Experimental Observations.

(*a*) *Attempts to produce immunity in normal rats by means of an emulsion of formalised tumour cells.*—Jensen's rat sarcoma (J.R.S.) was ground in an apparatus (broyeur Latapie) which reduces it to separate or small groups of cells without interfering with its infective power. This material was mixed with about ten times its bulk of 0·1 per cent. formalin, and was injected subcutaneously and intraperioneally at various periods after mixing. It was found that even after a few minutes the infectivity of the tumour cells was entirely destroyed, but although the injections were repeated no adequate degree of immunity was evoked. In spite of these adverse observations, it was (on the analogy of the results obtained with antiserum) considered worth trying whether by inoculating formalin into growing tumours *an effective vaccine could be produced in the living animal.*

(*b*) *Study of the effects of injecting formalin into growing rat sarcomata.*—Approximately 0·1 c.cm. (a large dose) of minced, actively growing J.R.S. (from 10 to 14 day old tumours) was inoculated into the flank of young adult black and white rats—i.e., the site at which it grows most vigorously. In a week's time tumours of about 1 inch in length and weighing roughly 1/150 to 1/100 of the animal's body-weight resulted. The material used in all these experiments was so virulent that natural regression very rarely occurred, and in 95 per cent. of cases the control animals died in three to four weeks. It will be appreciated that using a tumour of such virulence entails heroic dosage of formalin and a rapidity of judgment which would be unnecessary in the slower-growing tumours of man. Untreated controls were kept in each experiment.

Into six to eight day old tumours, formalin* diluted with distilled water, and in some cases with saline, was injected slowly and with as little pressure as possible. After many experiments 1 per cent. of formalin was found to be the most appropriate dilution. About 1 to 2 c.cm. of this solution was injected daily until the tumours ceased to grow and acquired a peculiar soft doughy consistency, which only experience can teach one to recognise. A considerable area of inflammatory thickening surrounded the tumours and no doubt this reaction aided in producing cure.

If the treatment is carried out skilfully and is stopped at the right time, regression takes place gradually (beginning after five or six days) and becomes complete without the occurrence of ulceration. If it is carried too far ulceration is apt to occur with the risk of prejudicing the subsequent immunity. Too prolonged treatment may also do harm by destroying many of the extravasated leucocytes which play an essential part in the process of cure. If, on the other hand, treatment is stopped too early the remnants of the very virulent tumour used may gain such an ascendancy that cure is unattainable even if the injections are resumed. The number of injections must be varied according to the progress of the case; in some instances only two or three doses of formalin are required, but generally five to eight injections and sometimes a dozen or more are necessary. The animals should never be injected when they are thirsty, since thirst increases the rapidity with which the formalin is absorbed into the blood. The first dose injected should be small, 0·5 to 1 c.cm., but a second injection may be given six to eight hours later when local œdema has appeared. The injections should not be given too near the skin in order to lessen the risk of ulceration.

In tumours treated by formalin in this way every grade of dilution of formalin must be present at some area or another. In some parts the concentration will be too weak to kill the cells, at other places so strong as to destroy the antigenic factor. In yet other areas the appropriate dilution will occur—i.e., a concentration of formalin just adequate to kill the cells, without destroying their antigenic constituent.

It is possible that a yet more effective reagent than formalin may be found, but where full-grown rats are selected and the tumour is not over 1/100 of the body-weight of the animal—i.e., 2 cubic centimetres or so in bulk—it is possible, after some months of experience, to obtain even with formalin well over 90 per cent. of cures. The subsequent immunity is of a very high order, for out of 43 animals cured and subsequently inoculated 40 were found to be immune—i.e., 93 per cent.

[1] Lumsden, T.: THE LANCET, 1926, ii., 112; Ibid., 1927, i., 116.

* Everywhere in this article the word "formalin" refers to the commercial product containing roughly 40 per cent. of formic aldehyde. The 1 per cent. formalin used for treatment contains, therefore, about 0·4 per cent. of formic aldehyde.

The details of all the completed experiments are as follows:—

Date of exp. in 1927.	Rats treated.	Rats cured.	Date of exp. in 1927.	Rats treated.	Rats cured.
21/3	13	8	17/10	7	7
19/5	8	5	24/10	5	4
26/9	24	17	31/10	3	3
4/10	10	10			

In all 70 animals were treated, of these 54 were cured—i.e., 77 per cent. It will be noticed that as the result of increased experience the percentage of cures rose in the last four experiments to 96—viz., 24 out of 25 tumours disappeared.

Subsequent Immunity.

Forty-three cured rats were inoculated on the same day—i.e., at varying periods after cure—with 0·1 c.cm. of J.R.S. fragments. Twelve normal and eight uncured treated rats were given a like dose of the same material as controls. The rapid growth in all the normal control animals showed how virulent the test J.R.S. fragments were. In every instance the inoculations into the cured rats grew much less rapidly than in the controls, but probably in most cases proliferation occurred for a day or two. The test tumours in cured rats could be divided into three more or less overlapping groups: (1) Those in which no increase in size was seen, the graft being imperceptible after a week or 10 days—(12 rats). (2) Those in which well-marked proliferation with increase in size of the graft took place for seven to ten days, but which thereafter regressed and had disappeared in from 14 to 21 days—(28 rats). (3) Those in which growth though slow was progressive (3 rats)—i.e., in 7 per cent. All the test tumours were measured every two to three days, and portions of the growth from typical examples of each of the three groups were removed for histological examination.

Histological Examination of Treated Tumours and of Test Implants.

(*a*) *Treated tumours.*—Twenty-four hours after 1 per cent. formalin has been injected a certain amount of hæmorrhage has taken place into the growth and in some areas many cells have pyknotic nuclei. Already round the outer edges of the tumour a dense concentration of leucocytes of all kinds has taken place. Over the greater part of the tumour, however, the sarcoma cells are still healthy and are actively dividing.

Later on, when regression is well marked, in progressively increasing areas death of the tumour cells has occurred, some have pyknotic nuclei, in many others the nuclei have entirely disappeared. A large army of leucocytes invades the tumour, and at length little but stroma and blood-vessels remain, these ultimately disappear, the whole growth becoming replaced by scar tissue.

These appearances resemble more or less those observed during the regression of a test inoculation in an immune animal, but the proof that immunity plays a large part in the process of cure does not rest on this similarity alone; it is demonstrable also in other ways. Thus if the serum of a rat whose tumour is disappearing as the result of treatment is applied to a culture of mouse cancer cells it damages them seriously. A normal rat's serum never does so. A further proof is that the formalin injections may be discontinued before the tumour has completely disappeared, and while many sarcoma cells are still alive. Once the formalin has definitely turned the scale of the battle between the tumour cells and the rat's defensive forces (antibodies and leucocytes) treatment should be stopped. The remaining portion of the tumour will regress without further outside assistance.

(*b*) *Test implants.*—Sections of many tumours at various stages of growth and of regression have been examined and the detailed observations will be the subject of a future communication. It may, however, be of interest to give here some of the facts, and the interpretations placed upon them.

1. Where a very high degree of immunity is present, as in the case of a rat cured of a large tumour by two injections of concentrated antiserum, the test graft disappears as rapidly as in a hyperimmunised animal. In such instances the inoculum regresses without any appreciable period of proliferation. The cells at the periphery of the graft, which attempt to invade the resistant tissues, are killed, and the whole inoculum is rapidly destroyed, death proceeding from the circumference towards the centre.

2. In animals less highly immunised—e.g., in cured but not hyperimmunised rats—the graft generally wins a local victory at first. Invasion of the normal tissues by the sarcoma cells succeeds, and a stroma is commandeered almost as effectively as in the normal unprotected animal. Within a few days however, reserves of trained leucocytes are mobilised round the tumour and sooner or later (7 to 21 days) in 90 per cent. of cases, the battle ends in victory for the animal and the test implant disappears.

Such regression is clearly not caused by the animal refusing in some mysterious way to furnish a stroma. Death is not due to simple inanition, for in that case the cells at the centre of the inoculum being least nourished would die earlier than those which obtain a subsistence by soakage of lymph at the circumference. The reverse is what actually happens. It is clear, therefore, that the peripheral cells which die first must be actively destroyed by forces other than starvation. The effective factor in rapid destruction of a graft is that the sarcoma cells are in a highly immune animal, unable to invade the body tissues successfully. Conversely in the unprotected animal, when successful invasion is achieved there follows an inflammatory reaction with formation of new blood-vessels and connective tissue and progressive growth ensues.

"*Metastatic*" *tumours.*—In some experiments just before, in others a few days after beginning treatment of a sarcoma of the right flank, a graft was implanted also in the left flank in order to simulate a metastasis. The study of this "metastasis" gave a very useful guide as to the rise and progress of immunity. In all cases the second implant grew for several days. Then if the right flank tumour was responding satisfactorily to treatment, the resulting immunity was evidenced by the cessation of growth and later regression of the "metastasis." If, however, the cure of the treated tumour was delayed the "metastasis" continued to grow and in some cases attained so large a size as to impede or prevent cure, presumably by absorbing the antibodies which were being produced in the animal. Since this experiment entails a struggle between opposing variable factors it is difficult to predict the results when using a tumour of great virulence. If, however, the appropriate conditions are attained, the results are interesting and convincing. In several cases the fact that the "metastasis" was seen to be regressing made it possible to stop the formalin injections into treated tumours earlier than one would have dared to do but for this indication of the onset of immunity.

Remarks.

When tested upon tissue cultures of normal and malignant cells it is found that formalin has little if any specificity in its action on cancer cells. It appears, however, to have the power so to kill these tumour cells in the body that they become antigenic. Absorption of the vaccine thus produced evokes a general active immunity of the most exquisite specificity. Reagents are produced which attack and destroy not only the remaining portion of the original tumour, but also any small coexisting untreated tumour which is present, without damaging any normal organ or tissue. The following points must be kept in mind: The younger the rat the more difficult it is to evoke immunity, and to effect cure. The smaller the tumour the easier it is to cause regression, but the less powerful is the subsequent immunity. There is, therefore, a time of election which is the most favourable for beginning treat

ent. In a rat this is when the tumour has attained, y, 1/150 of the animal's body-weight; in a human ing it would probably be earlier. The sooner eatment is stopped after cure is assured the more ective is the resulting immunity. Severe ulcera- n lessens the degree of immunity attained.

It has been impossible to try the curative effect of is treatment upon spontaneous growths on account the lack of material. A single observation is of erest in this connexion. In a rat which was ffering from a spontaneous adenocarcinoma of the east, the cure of an implanted J.R.S. by means of malin injections was followed by marked regression the spontaneous mammary tumour which is now ly about one-fourth of its original size and is inishing steadily though slowly. Since this is an lated instance, and may be an example of spon- eous regression, too much reliance must not be ced in its significance.

Vaccine treatment has not yet been fully investi- ed in carcinomata, and may conceivably be less plicable to these than to sarcomata, but judging m the analogy of antiserum treatment this is likely, for with the latter reagent cure was even re sure and easy in the case of the rat carcinoma 9) than when J.R.S. was the tumour treated. me cases of mammary cancer (M.63) in mice were ated with formalin, but the mouse is a very unsatis- tory animal for such experiments, its soft tissues d to ulcerate and do not retain injections well; o cancer of the breast is in mice very apt to invade peritoneum, a complication which makes treat- nt by formalin difficult and ineffective. More erse still is the fact that, like very young rats, e have rather feeble powers of producing active munity to tumours. In the last batch of mice ated, out of seven mice five appear to be cured, since some ulceration occurred in all of them, it ncertain whether these five will be immune when ed later.

Vaccine treatment of the kind referred to above t present only applicable to comparatively early small tumours, and such as could be easily oved surgically, but the fact that it is followed general immunity renders it when effective nitely superior to excision, since it precludes the sibility of recurrence. When a large tumour is ated in this way the treatment is unavailing. struggle for existence is taking place between tumour and the animal it infests. There is a it to the amount of protective material which animal can produce, and if the tumour is ond a certain size it appears to absorb the ensive reagents more quickly than the animal manufacture them. Progressive growth of the our and death of the animal ensues. To give the tment a fair trial it is therefore essential that it uld be applied in comparatively early stages of disease.

t has already been shown [1] that local inoculations specific antisera bring about the same train of nts as the injections of formalin referred to above. the two reagents formalin more readily destroys local growth but the subsequent immunity is re certain after cure by antiserum. A few recent ervations suggest that by concentrating antiserum say, one-fifth of its bulk, by evaporation at 37° C. vacuo, its local destructive power may be made to al that of formalin, in which case the specificity ts action on tumour cells would make it preferable reto.

Conclusions.

. By means of appropriately managed local ections of formalin into a tumour while it is still wing in the body of a rat, it is possible to damage e of the tumour cells in such a way that their ility is destroyed without annihilating the anti- ic constituent they have been shown to contain. sorption into the general circulation of the vaccine oduced gives rise to an active immunity which pletes the cure of the treated tumour and vents recurrence.

2. By vaccine treatment of this sort very virulent tumours (J.R.S.), weighing as much as 1/100 of the body-weight, were made to disappear. Of 70 tumour-bearing rats so treated, 54 were cured—i.e., 77 per cent. In the four latest experiments the percentage of cures rose to 96—i.e., 24 animals cured out of 25 treated.

3. Forty-three animals so cured were subsequently inoculated with grafts of the tumour concerned. In only 3 of these did the implant grow progressively—i.e., 40 (93 per cent.) of the rats proved to be immune.

4. It is possible that by pursuing the above line of inquiry a particular reagent yet more effective than either formalin or antiserum may be found. The general principle rather than the individual method is insisted on—namely, that by local treatment of a tumour *in corpore* a vaccine capable of evoking active tumour-immunity can be produced.

It is a pleasure to express my gratitude to Sir Charles Martin, F.R.S., director of the Lister Institute, for valuable advice and criticism. I thank my assistant, Miss A. C. Kohn-Speyer, B.A., for much skilled help, and especially for keeping careful records of all the experiments. By means of their grant to me the British Empire Cancer Campaign have made it possible for me to devote the whole of my time and energy to this research.

THE ZÜND-BURGUET METHOD IN CHILDREN.

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THE following five cases demonstrate the value of the electrophonoïde treatment of Zünd-Burguet in cases of deafness in children, which have hitherto been considered as hopeless. The results encourage one to hope that a considerable percentage of the deaf children who, from the failure of all other treatments, have been compelled to receive their education by the usual methods employed for the deaf, may in future be so far restored to hearing as to be fit for education in normal schools for the hearing.

Five Cases Related.

CASE 1.—A. B., aged 16 (born 1910), was "perfectly normal" until five years old, when deafness began after whooping-cough and slowly increased. She was seen by four otologists (all on the staffs of large general hospitals), one of whom removed adenoids, and a second gave as his opinion that the deafness was due to "meningeal trouble." I saw her first in June, 1922, when inquiry into four generations of family history failed to discover any trace of deafness. The family doctor was of opinion that hearing was not entirely lost. Both drums were normal, and there was nothing noteworthy in the upper air passages. On testing, she could hear open vowels with the right and partly with the left ear. She was said to have heard sentences in the loud voice very close to, but I failed to confirm this. Bone conduction for the 35 seconds fork was R. = 12 in., L. = 22 in. By air conduction she heard, R. and L., from I C 64 to C 512—i.e., all in the area of human speech. Galton whistle was not perceived in any part of the scale. I gave it as my opinion that she would have to be educated upon deaf methods, and that an attempt should be made to develop the residual hearing by exercises combined with lip-reading. I saw her again in March, 1926, and found her reactions to tests much the same as four years previously. The Zünd-Burguet treatment was then suggested as—to me at that time—a rather unknown quantity that might be successful in developing her residual hearing, and which could, at any rate, do no harm. The suggestion was accepted by her parents and put in practice on March 8th, sittings being given five days weekly. On March 31st she could hear knocks on the door and the click of the electric light switch. During the whole period of the treatment, save when she returned home for the holidays, she was living with a trained teacher of the deaf. Mrs. Haine and her husband undertook to exercise her hearing, first by vowels, later by sentences. She was tested on April 2nd, two days after the completion of the first 15 sittings. It was then found that she could hear such sentences, spoken in a clear ordinary voice, close to either ear, as "How are you?" "When

do you go home?" "That was a spider." "It is a fine day," &c. Mrs. Haine reported that she could repeat sentences after her husband easily, and less easily after her, and she evidently heard men's voices better than women's. Her voice already showed less of the "dead" quality associated with serious loss of hearing. The treatment was continued until April 23rd, when the first course of 30 sittings was completed. She could then repeat any sentence, however nonsensical, given her at about 6 inches. Her voice was greatly improved. She went home for the Easter holidays, and not only heard her father's voice for the first time for some years, but could hear all he said to her. She resumed treatment on May 11th, and on July 23rd was hearing all sentences regularly at 6 inches as a minimum. On her return from the summer holidays on Sept. 23rd, the report was that she could hear her father at about 50 inches and, for the first time, she repeated my sentences, in ordinary low tones, at 12 inches. Treatment was regularly continued to Dec. 11th. On Oct. 11th she could repeat all that was said to her always at 12 inches with the right, and 8 inches with the left ear, and on one occasion remarked to me: "I hear differently now in the right ear. I really *do* hear." On Nov. 30th she heard a *whisper* close to the right ear. On Dec. 15th my ordinary voice was heard by either ear at a distance of 18 inches. The improvement appeared to be continuous, and she could hear a book read to her at from 8 to 12 inches. She resumed treatment after the Christmas holidays on Jan. 4th, 1927, when it was found that she could hear the slightly raised voice at 6 feet. After an operation on March 26th for appendicitis, her hearing diminished during convalescence, but completely recovered later. Altogether she had 182 treatments. She occasionally, during the treatment, complained of slight aching in the ears, and it was often noted that this occurred before a further improvement. This phenomenon is attributed by Zünd-Burguet to the stretching of adhesions in the tympanic cavity. In a case like this, in which the deafness had existed from early childhood, the daily exercises in speech, already alluded to, formed a valuable adjunct, since she knew words by *sight* only, either as spoken—i.e., lip-read—or written words, and it was necessary, therefore, to educate her in the knowledge of their *sound*. It may be added that Miss A. B. is an exceptionally intelligent girl, and had learned Latin and French by the oral method before she underwent the electrophonoïde treatment. At the time of writing (October, 1927) she has retained her improvement, and will later resume treatment with a view of a further increase of her hearing. Sincere thanks are due to the teacher and her husband.

CASE 2.—C. D., aged 6½ years. Bilateral deafness for some two and three-quarter years arising in the following manner. At 4 years and 3 months tonsils and adenoids were removed, and as he lay in bed recovering from the anæsthetic his thigh was severely burned by a hot-water bottle left in contact with it by a careless nurse. The burn was extensive, and became septic. He slowly became deaf from this time, and three otologists independently diagnosed the deafness as of auditory nerve origin, and agreed that there was nothing to be done. I first saw him two years and a half later. Both drums were normal in colour, lustre, inclination, and mobility, and nothing noteworthy could be found in the nose or throat. Bone conduction to the 35 seconds fork was R. = 14 seconds, L. = 21 seconds. No loss for low tones. Galton whistle R. = 1·7, L. = 1·5. The whisper was not heard by either ear. Ordinary conversational voice R. = 15 in., L. = 8 ft. Electrophonoïde treatment was commenced Oct. 13th, 1926, and on Nov. 3rd, two days after completion of the first 15 sittings, voice was R. = 3 ft., L. = 8 ft. On Nov. 20th he surprised his mother by hearing her whisper, his face being turned away. On the completion of 30 sittings, voice was R. = 8 ft., L. = 12 ft. Whisper R. = 1 ft., L. = 14 in. Bone conduction R. = 25 seconds, L. = 30 seconds. On Jan. 4th, 1927, he returned for a further 20 sittings, and it was found that he had gone back slightly, voice being R. = 3 ft., L. = 11 ft. Whisper R. = 9 in., L. = 1 ft. This second course was unfortunately interrupted by a severe attack of influenza. On his return on April 26th the hearing was R. and L. = 12 ft. Whisper R. = 10 in., L. = 17 in. A further course of 20 sittings resulted in voice R. = 12½ ft., L. = 15 ft. Whisper R. = 10 in., L. = 16 in. Bone conduction R. = 27 seconds, L. = 31 seconds. I did not see him again until Sept. 19th. His hearing had again retrogressed, and a thorough overhauling by Mr. J. E. R. McDonagh revealed the fact that he is suffering from a definite colitis with resulting chronic intestinal intoxication. He has been placed under treatment, and further electrophonoïde sittings have been postponed for three months.

CASE 3.—E. F., aged 8 years. Deafness after measles in 1925, was very ill for four or five days. Tonsils and adenoids removed three years earlier, and the evidence showed that he had been slightly deaf prior to the operation and had become worse after the measles. Could not hear low tones, such as the buzz of insects, had never hea the cuckoo, but could hear the lark and women's voic Of general conversation he heard nothing, and had lost t power of listening attentively. Late in speaking and ve indistinct up to three years, speech was still slightly defecti Drums showed good lustre and very slight indrawi Nothing noteworthy in throat and nose. Bone conducti to 35 seconds fork R. = 25, L. = 20. Lowest tone hir R. = 1 C 64, L. = 2 C 32. Galton whistle normal R. and Whisper R. = 45 in., L. = 5 ft. On August 24th, 19 the Zünd-Burguet treatment was commenced. After 6 sittings, whisper R. = 15 ft., L. = 8 ft. After 30 sittings was R. = 15 ft., L. = 9 ft. This was highly satisfacto considering that two otologists had pronounced the opini that treatment was useless, and that he would have to educated upon deaf principles. On Nov. 9th he return for a further 20 sittings, when it was found that not o was the hearing maintained, but that in the left ear it h increased another foot. At the end of this course t whisper was over 17 ft. in the right and over 10 ft. in t left ear. Seen on Feb. 28th, 1927, this improvement w maintained, he was reported as doing well at school, t that his hearing varied a little for different voices and could not always locate sounds. On May 30th I fou that the hearing was maintained, and he volunteered that had heard the cuckoo for the first time. He was n however, in good general health, and examination Mr. McDonagh revealed chronic colitis, for which he w placed upon treatment. He is now in sound health, has h no recurrence of the deafness, and is attending an ordina school.

The results obtained in these three cases impell me to consider the wisdom of testing the treatme in pupils who, after long trials of the methods esta lished by otological tradition, had been relegated failures to schools for the partially deaf. After co sultation with the deputy inspector of L.C.C. de schools, two boys were selected for experiment courses. Both were cases of so-called middle-e deafness, and the details of their treatment are brie as follows:—

CASE 4.—G. H., aged 11 years, was first seen Feb. 12 1924. He was stated to be deaf, which his mother deni Mouth-breather, with marked tonsils and adenoids. Ve difficult to test, but obviously very deaf. Certified as "ha of hearing," after removal of tonsils and adenoids and otl treatment had shown no result. On Nov. 17th hearing voice was R. = 4 ft., L. = 0. He gradually became wor and on Feb. 28th, 1927, hearing for the voice was o R. = 2 ft., L. = 0. After 15 sittings of the electrophono treatment it was R. = 3 ft., L. = 0. On the completion 30 sittings it was R. = 12 ft., L. = 0.

CASE 5.—K. L., aged 12 years. First seen Dec. 4th, 19 Then had a good voice, and had done fairly well in t infants' school. Drums markedly indrawn, throat a nose clear. His deafness varied. Raised voice was R. = 4 L. = 3 ft. He was certified for the front row of an ordina class, for revision after six months. This was done wi the object of treatment in the interval. On July 1st, 19 he was obviously more deaf, hearing the loud voice only 4 ft. Speech was now defective, and he did not appe to have received adequate treatment. Certified for "hard hearing class." On Feb. 21st, 1927, hearing for the ordina voice was R. = 2 ft., L. = 9 in., and the electrophono treatment was commenced. After 15 sittings hearing w R. = 2 ft., L. = 1 ft. 10 in. At the completion of 30 sittin it was R. = 2 ft., L. = 2 ft. The improvement in the l ear, although the hearing was more than doubled, w disappointing, but perseverance would probably be attend with more success. I am of opinion that this boy was example of chronic intestinal intoxication, a condition whi has, I believe, a very intimate relation with intractal chronic deafness.

Deductions.

The lesson to be learned from the five cases ju described is a very valuable one. They sugge that a considerable percentage of children sufferi with progressive deafness are given up as hopeles once the traditional methods of removal of tons and adenoids, with more or less regular inflatio have proved useless, when the Zünd-Burguet trea ment might give highly satisfactory results. It not unreasonable to suppose that the first, fourt and fifth cases of this series—a small series, I admi but one capable of great extension—could have be saved from the necessity of education on deaf lin by a timely application of the electrophonoïde. Sin the net cost of education of deaf children, as compar

with hearing children, according to the London County Council estimates for 1926–27 is, per capitam, as follows :—

	£	s.	d.
Elementary schools	15	7	4
Deaf schools	67	6	2
Partially deaf schools	49	13	1

It is obvious that the introduction of the electrophonoïde treatment into our treatment centres throughout the country would be attended by a considerable saving in the annual public expenditure, once the initial cost of apparatus and the training of operators had been defrayed. It would mean, in addition, a rise in the social happiness and potential civic efficiency of many more of our children. Cases 2 and 3 specially illustrate this latter point. Cases 4 and were experimental, and a continuance of their treatment by this method will probably bring further improvement.

An experience of 20 years' work among deaf children certifiable as deaf, within the meaning of the Act of 1893, has convinced me of the helplessness of otology before a considerable percentage of cases of non-suppurative deafness. I am certain that in many of these cases the electrophonoïde method would give excellent results; an opinion based upon two years' work with the apparatus, and the published papers of Raoult of Nancy, Helsmoortel of Antwerp, Lathcart of London, Ferguson of Jersey, and others.

In cases of chronic non-suppurative deafness, both in children and adults, there are other and more general causes at work than those usually described in text-books of otology, and I would draw attention to the widely different behaviour to local treatment of cases of catarrh of the upper air passages, the effects of which catarrh upon the ears is well known and accepted. There are plenty of cases in which the removal of adenoids and septic tonsils, the correction of nasal abnormalities (as deflected septum), and other conditions in the nose and throat (as chronic sinusites) are attended with excellent results, ranging from fair improvement to complete relief of the aural disability. But there remains a large —I am tempted to say a very large—residue of cases in which, in spite of all traditional treatments, there is progress from bad to worse to final severe chronic deafness. The otologist is often too prone to confine himself in his search for causes to the immediate neighbourhood only of the organ in which he specialises, and therefore fails to detect an underlying general cause. I am only too conscious of the fact that I have myself sinned in this way in the past. What is usually termed "constitutional treatment" is a vague shibboleth of the text-books which, when undertaken, is often merely perfunctory. Recent experience, of which Cases 2 and 3 are illuminating examples, has led me to the opinion that in those instances in which chronic catarrh persists after every treatment, operative, local, and so-called "constitutional," has been tried, the real cause may be, not in the upper air passages, or the middle and external ears, but in the intestinal tract.

LEEDS MATERNITY HOSPITAL.—With a bed capacity of 50, this hospital has 75 actually in use, and sometimes further accommodation to the extent of 10 per cent. is to be improvised. A quarter of the births in Leeds occur within its walls. It is now proposed to increase the accommodation to 103 beds, with an isolation block, a new operating theatre, and further room for the nurses and domestic staff.

WALTHAMSTOW, WANSTEAD, AND LEYTON CHILDREN'S AND GENERAL HOSPITAL.—The Duke of York, who was accompanied by the Duchess, recently opened the extension of this institution, which serves a population of over 300,000. The extension increases the accommodation from 50 to 98 beds, including ten private wards for paying patients. The addition also provides a new nurses' home, residential quarters for two house surgeons, a new casualty department, increased accommodation for out-patients, and a new X ray and radiological department. The works have cost £45,000.

NICOLL'S OPERATION FOR FEMORAL HERNIA.

SOME SUGGESTED MODIFICATIONS.

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MUCH has been written in recent years about the operative treatment of femoral hernia, but most authors treat operations from below with scant consideration, as if they were quite archaic and of no practical value.

The Original Operation.

In 1906 Nicoll, of Glasgow,[1] published details of an operation which, in my opinion, was based upon sound principles in that, after dealing with the sac, he closed the femoral canal by suturing Poupart's ligament to the back of the pubic bone. He also suggested a method of dealing with the sac on the lines suggested by MacEwen for inguinal hernia, but I have not adopted this part of his technique, as it did not seem to offer any marked improvement on the old method of transfixion and ligature. I have, however, performed his osteofascial suture for over 20 years and have, I venture to think, found out for myself a few points in which his original methods may be improved.

My habitual procedure is as follows. A curved incision is made, as recommended by Sir Watson Cheyne, and a flap turned inwards, exposing the sac and the lower part of the external oblique. The sac is dealt with in the usual manner; it is allowed to slip back, and any tags of retroperitoneal tissue which are present are pushed back through the femoral canal. The anterior surface of the pectineus can now be quite easily exposed by stripping a little loose areolar tissue from its surface. The vein is held out of danger to the outer side, and the point of the knife is passed through the fibres of the muscle down to the bone; by cutting the muscle from without inwards the horizontal ramus of the pubis is exposed for about an inch. The problem which now presents itself is that of drilling two holes through this bone.

Drilling the Bone.

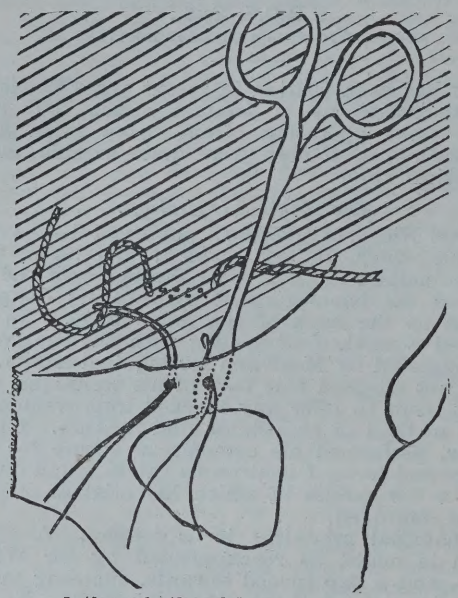
I have used many types of drill, but all had the disadvantage of penetrating the compact bone on the deep aspect of the pubis with a disconcerting jerk. I have never wounded anything, but I have had some anxious moments. Nicoll used a tongue depressor to protect the deep structures, passing it through the femoral canal to the deep side of the bone. This is, however, rather large for many cases, and I have generally used my finger. It is usually easy to feel when the drill is coming through, but at times the finger is in danger. Recently I have overcome this difficulty by using an ordinary carpenter's gimlet, which is passed through the bone without any appreciable pressure by simply turning it round and round. This tool as sold consists of a metal part riveted into a hard wood handle. These are fastened together by expanding the metal portion over a washer, after it has been passed through the wooden handle. A few touches with a file will remove this expanded portion, and the metal part will come away with a nicely squared shank, which fits into the ordinary chuck drill-holder that every instrument-maker sells. In addition to the gimlet, two pieces of annealed iron wire are required. These should be about 18 inches long and about as thick as the wire used to tie down champagne corks. They must be doubled in half and the loop thus formed crushed almost flat between the blades of a pair of artery forceps.

Having exposed the bone, the surgeon passes his forefinger to the back of the pubis, into the loose areolar tissue above the attachment of the pelvic fascia, which is not here attached to the margin of

[1] Ann. Surg., 1906, xliii., 114.

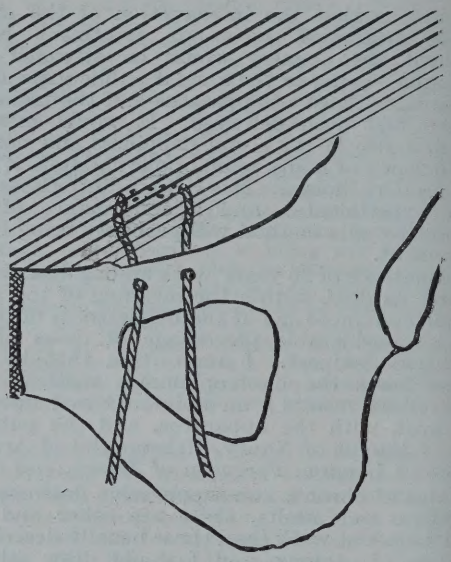
the pelvis, an anatomical condition which greatly facilitates this operation. If the femoral canal is too small to admit the finger readily there need be no hesitation in dilating it, as the subsequent stages of the operation will close it quite efficiently. The bone is now bored through in an upward direction with the gimlet, the point of which can be easily felt as it comes through the bone. When the gimlet projects well through all the blood is carefully mopped from the depth of the wound and the gimlet withdrawn. Before the field of operation has become obscured by fresh oozing, one of the loops of wire is passed through the hole in the bone and drawn up into the wound by means of a pair of artery forceps, introduced through the femoral canal. A few tags of retro-peritoneal tissue are often brought up also, but these are easily returned into their place. This procedure is repeated with the other loop of wire. A large needle threaded with very stout silk is now passed through the tissues above Poupart's ligament, picking up not only the external oblique but some of the fibres of the deeper muscles, and including in its grasp the upper and outer part of the internal pill of the external abdominal ring. The needle is no unthreaded and each end of the silk suture passe through the corresponding wire loop. By pulling o the loops the silk suture is drawn through the hol in the bone, so that there is now a strong mattres suture passed through bone and abdominal wal By pulling firmly on the two ends of this suture it possible to draw Poupart's ligament and the structur in immediate relationship with it to the back of th pubis. It is not enough to rely upon the parts bein brought into apposition by tying the silk suture there is so much friction over the rough surface the holes in the bone that unless the parts are brough into apposition by pulling on the suture, a gap wi be left which will not satisfactorily close the femor ring. It will be obvious, therefore, that strong sil must be used, and although I have always use very thick silk, I have never had to remov it subsequently. Indeed, one strangulated cas suppurated slightly without the stitch giving an trouble.

FIG. 1.



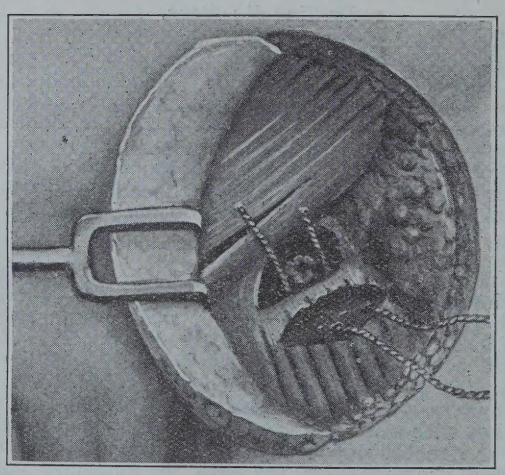
Suture passed through the abdominal wall and through the inner wire. The outer wire is shown grasped with the artery forceps by means of which it is to be drawn up.

FIG. 2.



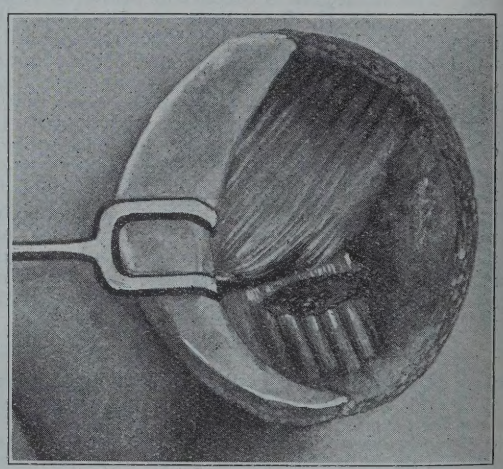
The suture passed.

FIG. 3.



The same stage as Fig. 2 shown in more detail. The ligatured sac is shown diagrammatically, but this should slip out of sight.

FIG. 4.



The operation completed.

Suturing.

I advise that the inner pillar of the external abdominal ring should be included in the stitch because I have seen an inguinal hernia follow this operation, and I believed that this was caused by the forcible dragging open of the inguinal canal. If it is not convenient to take in the inner pillar a few supporting sutures should be inserted uniting the pillars.

The points at which the bone is drilled must be selected carefully, so that when the operation is completed the femoral canal will be efficiently closed without any undue constriction of the vein. In very large rings I have put in two mattress sutures of this kind, or one mattress suture and a simple suture going once through the bone and picking up Poupart's ligament. When the suture is tied the wound can be closed as soon as any superficial bleeding has been dealt with. There is no need to suture the pectineus, as only its middle fibres have been divided. I am in the habit of incorporating a marine sponge in the dressing, an old-fashioned plan introduced, I believe, by Lister, which should be used more often than it is, for there is no difficulty in sterilising sponges, even though they cannot be boiled. In the bandage I like to incorporate one or more knotted turns, like the wool truss used by some people for babies.

Nicoll's method, in my opinion, deserves to be more widely used, and I hope that these modifications which facilitate the operation will make this most useful procedure more popular.

Clinical and Laboratory Notes.

A CASE OF PULMONARY INFARCTION COMPLICATING ENTERIC FEVER.

BY RICHARD MASSINGHAM, M.R.C.S. ENG.,
RESIDENT MEDICAL OFFICER, LONDON FEVER HOSPITAL.

THE following case has recently come under my observation:—

The patient, a man of 44, was admitted to the London Fever Hospital under Dr. C. R. Box on June 2nd, 1927. His illness had started, in the early part of May, near the Red Sea, with an ordinary febrile attack. He had returned to England on May 10th, and had remained more or less well ever since. Apart from general malaise, slight headache, and occasional diarrhœa, the most striking feature was a severe naso-pharyngeal catarrh; from this, however, he had suffered for some years. There had been some dirty muco-purulent sputum which was slightly streaked with blood. There were no definite physical signs in the lungs apart from a few crepitations at both bases. On May 30th the spleen became definitely palpable, and on the following day a rose-pink papular eruption was well marked. Although two blood examinations had proved negative, a diagnosis of enteric fever was made and the patient was transferred to hospital.

For this history I am indebted to Sir Charlton Briscoe and Dr. C. E. Lakin, under whose care he was before admission.

When first seen the patient looked very ill, with temperature 104·6° F., pulse 92, and respirations 20. The tongue was dry and coated, the abdomen moderately distended, and the spleen just palpable. Several rose-pink spots were present on the back and front of the chest and abdomen. Examination of the chest showed a few crepitations and scattered rhonchi over the lower half of the right chest and the base of the left lung. A Widal reaction now showed *B. typhosus* to be agglutinated in a dilution of 1 : 2000; the paratyphoid group negative. The patient, apart from a general feeling of malaise, complained chiefly of a troublesome cough and the expectoration of blood-stained muco-purulent sputum, examination of which showed the predominant organism to be a hæmolytic streptococcus with no typhoid or tubercle bacilli.

During the first three days in hospital the sputum became more heavily blood-stained, and the patient had two rigors, the temperature on one occasion falling to 96°. On June 6th he complained of pain in the right side of the chest. Examination showed imperfect movement on the right side, a dull percussion note over the lower lobes, a normal vocal resonance, and a friction rub, heard best just below the axilla. The patient was then expectorating almost pure blood, with temperature 102°, pulse 100, and respirations 30. On the physical signs and symptoms a diagnosis of pulmonary infarction was made. A careful examination of the body showed no evidence of arterial or venous thrombosis.

For the next three weeks, except for a slight but steady rise in the pulse-rate, the general condition and physical signs remained almost stationary. The temperature remained at the steady level of 102°–103° in the evening, with morning remissions of 2° or 3°, while the respirations remained about 30. By June 29th, however, the apex-beat had moved half an inch outside the nipple line, and the breath sounds had become fainter, although the vocal resonance and fremitus were still almost normal. Pus withdrawn by an exploratory puncture yielded typhoid bacilli.

On the following morning Mr. Maynard Smith resected a portion of the sixth rib, let out about three pints of pus, and inserted a large drainage-tube 5 in. long. For the next few days the pleural cavity was irrigated in the usual way with eusol until the washings were returned clear. About five pints were usually needed. During the wash-out on July 9th the patient suddenly became cyanosed and collapsed, and expectorated some sputum smelling heavily of chlorine. Apparently a communication between the lung and the pleura had been established. Eusol could, therefore, only be used in small quantities at a time. To keep the pleural cavity as clean as possible, a long small bored tube was stitched into the drainage-tube and then brought outside the dressing, so that, without disturbing the patient, small quantities of eusol could be injected day and night into the pleural cavity and allowed to drain into the dressing. Even then the patient sometimes complained of a taste of chlorine in his sputum.

During the next fortnight the general condition improved, the temperature started to fall, and the pulse-rate became slower. On July 21st, however, the patient during a fit of coughing expelled through the empyema opening a strip of lung 5 in. by 1 in. by 1 in. He said he felt "something give way," but beyond a little breathlessness his condition remained unaltered. Dr. J. Bamforth, who kindly sectioned a portion of the specimen for microscopical examination, reported that the blood-vessels were thrombosed, and the tissues had undergone coagulation necrosis. The temperature finally became normal on August 7th, and the tube was discontinued a week later. The patient was allowed up on August 23rd, and discharged from hospital on Sept. 27th.

During the last month in hospital the upper lobe of the right lung had expanded almost completely, and the air entry into the lower lobes had considerably increased. Diminished movement of the right half of the diaphragm was all that could be seen by a screen examination, while an X ray plate showed a small opaque mass in the lower lobe (apparently a scar) to which the diaphragm was attached.

So few are the recorded instances of pulmonary infarction in enteric fever that it must be considered rare. The references are confined to a few lines, with no mention of the time of onset, treatment, or prognosis, and appear to be the results of post-mortem examinations. Dr. Sidney Phillips recorded at the Clinical Society in 1905 a case of typho-pneumonia, where small hæmorrhagic infarctions were found microscopically scattered throughout the lungs.

H. Vincent and L. Muratet, in their book on typhoid and paratyphoid fevers, state that although the *Bacillus typhosus* may be present in the lungs, it is rare to find it in the sputum-cup; and it is of interest to note that in the case described above the bacillus was found in the pus from the chest but not in the sputum.

The complication of broncho-pleural fistula considerably increased the difficulty of washing out the pleural cavity, but the necessary alteration in treatment was one of degree and not of kind. The question of prognosis, however, presented great difficulty, since pulmonary infarction from any cause has a high mortality.

I am indebted to Dr. C. R. Box for permission to publish this case.

A NOTE ON
TWO UNUSUAL CASES OF FEVER.

BY E. WORDLEY, M.D. CAMB., M.R.C.P. LOND.,
PATHOLOGIST TO THE SOUTH DEVON AND EAST CORNWALL HOSPITAL, PLYMOUTH.

WITHIN the past two years I have seen two cases of obscure fever which presented several points of interest. They had almost exactly similar symptoms, and the disease in each case ran a very similar course, so that a detailed description of only one will be given.

The patient was a man aged 36, who, except for a holiday in Norway and Switzerland for winter sports two years previously, had not since been abroad. He was taken ill with malaise, pain in the limbs, headache, and sweating. For the first week he thought he had an influenzal attack, and went about his business without consulting anyone. Soon he became so weak that he went to bed and sought medical advice. When first seen he had a coated tongue and it was noted that his temperature rose very regularly to about 101° F. at about 5 P.M., after which he sweated profusely. He was very thirsty and was constipated. The liver and spleen were not enlarged. Fifteen days from the initial symptoms the fever subsided and he made an apparent recovery, though he still complained of headache and considerable lassitude. He was then vaccinated against small-pox, as there had been a case locally. The vaccination took successfully, and he appeared to be recovering, when, eight days from the fall of temperature already noted, he had a return of the fever and sweating. Pains in the joints were especially marked, and there was swelling of several of the larger joints, which quickly subsided. At this point a tentative diagnosis of an enteric infection was made, and some blood sent to me for agglutination. It proved to be negative to the enteric group of organisms. About this time I saw the patient myself, and further investigations were made.

The blood picture was as follows: red cells, 5,100,000; hæmoglobin, 82 per cent.; leucocytes, 5200; polymorphs, 39 per cent.; lymphocytes, 52 per cent.; and hyalines, 9 per cent. The blood on culture proved to be sterile. Nothing abnormal was found in the fæces either microscopically or on culture. The urine contained one or two pus cells, but was sterile. A faint trace of protein was present. His serum agglutinated *Micrococcus melitensis* up to a dilution of 1/400, 1/800 being negative; the serum was put up both heated at 55° C. for half an hour, and unheated, and the same result was obtained in each case. On further inquiry no history of any abortion amongst cows was obtained either at the farm that supplied the patient with milk or at any other farms in the district. In the present case this negative evidence is reliable, since the patient lived in a small country town, and it was easy to trace all the milk supply. No goat's milk had been taken. Unfortunately no cultures of *Bacillus abortus* were available at this time, and by the time I had obtained these the patient refused to be bled again.

The fever continued altogether for about two months, slowly subsiding, but a considerable degree of weakness was left, and as the patient went on a long sea voyage it was impossible to get again in touch with him. He was treated with intramuscular injections of nuclein, though these appeared to make little difference to the course of the disease.

The second case, seen two years ago, in the middle of 1925, was almost exactly similar in every respect; the patient had never been abroad, the same end-point for agglutination against *M. melitensis* was obtained, and the other negative findings. This patient, however, made a more rapid recovery, and was well, except for very slight lassitude, in a month. At that time the prevalence of *B. abortus* in cow's milk had not been recognised, and no effort was made to test the serum for agglutinins to this organism.

In view of two very similar cases recently published by J. Bamforth,[1] one would suppose that in these two cases the fever was due to infection by *B. abortus*, and it is regretted that no more precise investigations could be made. Further, it seems probable that if a due consideration of the history and clinical condition could be always obtained by the clinical pathologis performing the laboratory investigations, more case of obscure fever might be found yielding indication of being undulant fever. There is no question bu that these two cases were clinically quite characteristi of this disease. The further point that arises, howeve is what importance is to be attached to a positiv agglutination against *M. melitensis* in a dilution c 1/400. Is this sufficient in cases of this type t justify a diagnosis of undulant fever?

[1] THE LANCET, 1927, i., 819.

A NEW SITE FOR ONCHOCERCA VOLVULUS

BY N. A. DYCE SHARP, M.R.C.S. ENG.,
MEDICAL OFFICER, WEST AFRICAN MEDICAL STAFF.

Onchocerca volvulus, both male and female, hav hitherto been found only in subcutaneous tumour and these tumours are still regarded as the sol characteristic of infection by this worm. Yet th tumour palpable beneath the skin has never bee found in more than 50 per cent. of those persons wh exhibit the larvæ in the skin. In actual practice i is found that of 100 persons who show a skin infectio with embryos of *O. volvulus*, only 30–40 will hav tumours which are palpable even after prolonge search. The commonest sites for these little tumou are over the ribs in the axillary line, over the anteric superior spine of the ilium, and over the great tro chanter of the femur. They may, however, be foun in any region rich in lymphatics, and the ankles elbows, knees, and even the scalp may at times b selected. It is clear, therefore, that the visible o palpable nodules under the skin are not the onl sites in which the parent worms can lodge, copulat and reproduce their young. For if only 40 per cen of persons exhibiting embryos in the skin hav subcutaneous nodules containing the parent worms in the remaining 60 per cent. the adults *mus* exist in the deeper tissues. But they have never bee found there.

In the case here recorded no nodules could b detected after prolonged and repeated examinatio but the volvulus embryos were present in a fragmen of skin removed from the back.

The patient was admitted to hospital with an ulcerate foot, resembling a Lisfranc amputation, which had sup purated for months. He was unable to describe how h came to lose the front half of his foot, and it can only b surmised that it was due to yaws, which is often fairly pain less in its mutilations. After a few days the ulcer becam cleaner and showed signs of healing with injections o novarsenobenzol. At this time the "amputation" stum was covered with granulation tissue, and none of the frag ments of the metatarsal bones were visible. Boric fomen tations were applied twice daily, and when removed wer usually dry. The dresser to the case noticed, howeve that there was always one spot which was wet. It was the observed that at this point, almost in the centre of th wound, there was a drop of milky fluid, and a slender thread half an inch long, was extruded. For several days th dresser had been dragging on this thread and removin as much as possible. It proved to be part of a femal *O. volvulus*, and from the portion removed numerou embryos made their escape into the saline in which i was placed. The worm could not be extracted whole, bu half to one inch continued to be extruded for several mor days. It was estimated that about eight inches of worm was removed piecemeal.

Owing to the condition of the parts it was impossible t identify the exact locality from which the worm emerged but in a normal foot it would have been below the secon and third metatarsal in the fibres of the flexor brevi digitorum.

This case is also interesting because the presenc of the worm in the centre of the wound, continuall ejecting larvæ, appeared to have no deleteriou effect on the general healing process, which proceede normally. It resembled, in fact, the behaviour o *Dracunculus medinensis* in everything but this, an it might well have been confused with this worm ha it not been for the microscopical findings.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF NEUROLOGY.

A MEETING of this Section (to which members of the Medico-Legal Society were specially invited) was held on Dec. 8th, under the chairmanship of Prof. EDWIN BRAMWELL, the President, and later of Dr. GORDON HOLMES. A discussion on

TRAUMATIC NEURASTHENIA AND THE LITIGATION NEUROSIS

was opened by Sir FARQUHAR BUZZARD, who said that the subject was one which had produced much confusion in the minds of doctors as well as lawyers. All knew, he said, the clinical picture of the worried patient, complaining of insomnia, dreams, pressure-headache, depression, giddiness, phobias, and loss of memory and concentration. He submitted that this condition was a mental disorder, an anxiety neurosis following an accident for which someone else was responsible. It was just as likely to appear in the absence of any physical lesion, and indeed rarely developed after serious physical injury. It did not follow hunting accidents, for which only the rider or his horse was responsible. It might be encountered after injuries to any part of the body, but was common after blows on the head or spine, because these were associated in the lay mind with terrible disablement. An important ætiological factor was the fright produced by the accident; this was unfortunately disguised under the term "shock." The neurasthenia of workmen's compensation cases was often the cumulative result of many small factors and of suggestions from friends, especially if the victim were past the age when his value in the labour market might soon decrease. To the lay mind trauma was still the most important universal ætiological factor in medicine, as it was in the medical text-books of 50 years ago. The psychopathological factors concerned in the production of traumatic neurasthenia were: fear at the time of the accident, anxiety as to possible consequences to health, the subconscious desire to safeguard the future, the sense of injury, the knowledge that the responsibility for the accident lay on some-body else's shoulders, the ignorant interpretation of symptoms, the injudicious remarks and advice of doctor and friends, and the worry of litigation. Whether or not this mental disability could be legally regarded as a result of the accident was a question that had aroused some doubt in judicial minds. A lawyer's letter had put it thus:—

"The employer's case is that the man's inability to work is caused by brooding over the effects of the accident, and that he is suffering from weakness of will and a fixed but erroneous idea that he is a chronic invalid. If they establish this proposition then the court would have power to refuse further compensation. If, on the other hand, this man is suffering from neurasthenia, as we are advised, he is then entitled to a continuance of the compensation."

To Sir Farquhar Buzzard's mind, however, the alternative diagnoses therein offered meant one and the same thing. The problem was important, both economically and ethically, and the solution did not lie entirely with the lawyers. If doctors took as much care to prevent infection of the patient's mind with fatuous and morbid ideas as they did to prevent infection of his physical wounds, the seeds of traumatic neurasthenia would rarely be sown. Doctors obscured the issue by talking about shock when they meant fright, and by treating established neurasthenia with a weekly bottle of medicine and the advice to take outdoor exercise. Were it practicable for the law to refuse to recognise mental disability traumatic neurasthenia would soon become very rare. The practical difficulty of diagnosis and the conflict of medical evidence would, however, remain. The difficulty would never be satisfactorily settled until diagnosis were submitted to medical instead of legal jurisdiction. If, on the other hand, the law regarded the accident as responsible for all subsequent disorders of the mind, the workman who brooded over his injury and harboured erroneous ideas of chronic invalidism would be as justly entitled to prolonged compensation as the sufferer from traumatic neurasthenia.

The Lawyer's Point of View.

The Right Hon. H. P. MACMILLAN said that the problem was on the borderline of law and medicine, and was of peculiar interest. It was part of the daily routine of a judge to determine what was and what was not the direct consequence of a wrong or tort or accident. The legal doctrine applied was the "doctrine of remoteness." That task of discrimination had constantly to be made in almost every department of commerce. In this instance the plaintiff would have suffered, possibly, no direct physical injury, but a pathological state of mind had supervened which would not have supervened but for the occurrence. It was a consequence of the occurrence because of the mental habit of the patient, who, through want of robustness or some other reason, had proceeded to brood over the occurrence and had created a "grievance complex." He had actually contributed through his own deficiencies to the creation of the state of mind that was pathological. Lawyers had to be rough and ready; the foot-rule of the law was not very delicately adjusted to measure electrons and ions. The law was not and never could be an exact science; it had to get on with its business. A very good criterion was ordinarily applied by the courts. Any person could recover damages in respect of a breach of contract or tort when the consequences were the "natural and probable consequences of the occurrence." This was easy to formulate, but in practice was often difficult to apply. The law said that, if a person chose to assault a fellow citizen, he must take his chance of that citizen's having a peculiarly thin skull, so that the consequences of the assault might be unexpectedly serious. That was very good common sense. In the same way railway companies must take their passengers as they found them, including their previous dispositions, peculiar characteristics, and mental outfit. The law said that a chain of consequences might be broken by the introduction of a new cause—"novus actus interveniens." If the patient's condition were due to the subsequent introduction of a new element the patient himself doing something, then the law would hold that the consequences were not directly and naturally attributable to what the railway company had done. The task was always, therefore, one of discrimination. The function of the doctor lay in assisting the court to determine whether or not in any given case the symptoms could or could not be described as "natural and probable consequences of the occurrence"; at that point medical men could make a great contribution to the course of justice. The honest expert witness was indispensable for the administration of justice. Evidence of opinion was absolutely unallowable in ordinary matters of daily life, but where judge or jury might not be presumed competent to draw inferences—e.g., in the realms of science, skill, or art—expert evidence of opinion was welcomed from assessors, referees, or the expert witness in the box. The real vice of the situation at present was the theory that had grown up that the expert witness was in any sense an advocate. He was nothing of the sort, and he ought to give his unbiased view honestly and sincerely, without fear or favour. The scandal—if scandal there were—of the conflict of medical evidence had largely arisen as the result of this misconception of the rôle of the expert witness. The court was entirely at the mercy of the medical evidence put at its disposal; it was a fundamental principle that the judge proceeded entirely on the evidence put before him, and not on his own opinion. A very high responsibility, therefore, rested on the medical expert. The original crude view of the law had been

that unless the victim could show a definite physical lesion he had no claim. The law had now advanced beyond that point, and was learning to note the finer shades of medical opinion, but it would never be possible entirely to reconcile the medical and legal points of view. The former was necessarily scientific and exact, the latter was neither. Mr. Macmillan was not sure that it would be right to delegate the question of consequence to a body of medical men not subject to cross-examination. It was better for cases to be decided by rough justice than to drag on interminably. The problem was one of cause and effect, and he would prefer that it should be settled by a court of law with the assistance of expert testimony.

Sir JAMES PURVES-STEWART distinguished between traumatic neurasthenia and litigation neurosis. The former was a bona fide medical illness, the latter was a legal complaint—in both senses of the word. In the courts they tended to overlap, but an effort should always be made to differentiate them. Many a straightforward medical affair became contaminated with the toxins and antitoxins of the law. Litigation neurosis might be compared with an innocuous drink to which various exciting ingredients were added at the Bar, so that the resulting cocktail was both interesting and expensive. When the Workmen's Compensation Act became law it soon became evident that the average duration of disability after simple injuries had risen considerably. Modern education had broadcast the glad news of "traumatic neurasthenia," and everybody had heard of the victim of a railway accident who, on being asked if he were hurt, replied: "I don't know until I have consulted my solicitor." Nervous symptoms after accidents were of two kinds: (1) actual physical injury, concussion, or commotion to the nervous system, clearing up under treatment in a few days or weeks, in the absence of an atmosphere of litigation; (2) nervous symptoms due to the expectation of financial solatium, real enough to the patient but produced by the novus actus interveniens—viz., suggestion. Commonly the production or persistence of symptoms was unconscious, and the patient gradually built up a compensation hysteria persisting so long as hope of pension or grant remained. This neurosis was not really the result either of trauma or of fright, but resulted entirely from the suggestions of outside people. Medical treatment was of no avail, but as soon as the case was settled it became unnecessary. Of 17 cases recently investigated 10 had disappeared from medical care immediately after the verdict and six had left definite records of prompt return to work. The remaining case had drawn disablement pay for five and a half years and then had lost his pension, whereupon he had calmly resumed work. A pension was a worse form of compensation than a lump sum, for the patient had to "earn his pension."

Dr. RISIEN RUSSELL said that there was no more difficult problem in medicine; he had always wished that there might be medical assessors rather than expert witnesses on opposite sides. The picture so typical of litigation neurosis was also encountered in private practice apart from compensation. The medical man representing the Company was sometimes to blame, as well as the solicitor and friends of the patient. Dr. Russell had seen incredulity, brusqueness, and once even brutality in the way in which this doctor approached claimants. Such behaviour aroused fear of being "done down" and exaggeration of symptoms, and also stimulated the protective instinct of the family doctor, so that the seed sown by the solicitor was nurtured. Physical signs associated with traumatic neurosis were tremor and exaggeration at first, and later marked diminution of the tendon-jerks. The consequences of shock were worse in old people, and arterio-sclerosis often came into the picture. Ultimate mental and physical deterioration might follow accidents where there was no question of litigation. The victim of a fall in the hunting-field, moreover, was free from the financial anxiety which played an important part in the production of traumatic neurasthenia. Dr. Russell pleaded for consultation between the medical officers of the two sides; this would save much litigation.

Dr. W. A. BREND said that the number of cases referred to him as referee under the Workmen's Compensation Act had shown an extraordinary decline in recent years. This indicated that compromise out of court was increasingly common, probably because both sides realised the potential pitfalls and the difficulties of representing a case adequately, and also because of the belief that prompt settlement would lead to rapid recovery.

He quoted the case of a workman who had fallen from a ladder and developed traumatic neurasthenia. His medical witness had given evidence badly, while the doctor appearing for the employers had carried all before him and roundly declared that the man had tabes, describing the absent reflexes, &c. So effective had he been that plaintiff's counsel had accepted the fact of tabes and based his case on the argument that the accident had accelerated or accentuated the disease. Dr. Brend had taken an opportunity to examine the man and had found his knee-jerks and pupil reflexes normally present. He communicated his finding to the judge, who was thus placed in a most difficult position, for no evidence had been brought against the existence of tabes. "From a legal point of view," said his lordship, "he has locomotor ataxia and he has got to have it." The learned judge had finally persuaded counsel to reach a settlement without calling on him for judgment.

The Ministry of Pensions had experimented carefully with the "lump sum" treatment of war neurasthenics, but so many of the men had returned in spite of receiving a final compensation, that the method had been discontinued as a failure. Removal of anxiety was not sufficient to clear up war cases, but they were men who had had a very bad time and there were not many of that type in civil life. It was doubtful if the term "traumatic neurasthenia" could rightly be applied to those cases whose symptoms disappeared on receipt of compensation.

Dr. W. SALISBURY SHARPE divided traumatic neuroses into: (1) functional paralyses; (2) functional or hysterical contractures affecting a limb to which there might only have been the slightest injury—the contracture might show a tendency to indefinite spread; (3) liability to true hysterical or hystero-epileptic seizures; (4) definite persistence of a symptom long after complete reparation had taken place; (5) alleged spread of symptoms, especially pains and paræsthesias, to the opposite side or to other regions beyond the injury; and (6) psychoses. Lawyers spoke of shock in a way that showed great lack of appreciation of its medical meaning. True surgical shock greatly diminished suffering, both mental and physical. Most of the neuroses after injury were the effects of fear. The worst case of shell-shock he had ever seen had been in a man who had never been nearer the war than Plymouth. An important sign, and sometimes perhaps a cause of traumatic neurosis, was sugar in the urine; a modified diabetic treatment sometimes benefited the nervous symptoms. Endocrine disturbance, usually hyper-thyroidism, might also be present. Fear was an ætiological factor both in diabetes and in Graves' disease. Litigation neurosis was occasionally fostered by doctors. He had rarely seen real "advocacy" in an expert witness; what was sometimes mistaken for it was the fact that medical men might honestly come to different opinions.

Sir WILLIAM WILLCOX spoke in favour of the final decision being left to judge and jury.

Sir FARQUHAR BUZZARD, in reply, again asked that the legal mind should decide where the responsibility for the whole train of effects lay. He did not think the Ministry of Pensions cases comparable with those he had described, as so many other factors came in.

Mr. MACMILLAN, in reply, said that all professions were apt to require from other professions a degree of exactitude of which they were not themselves capable. It was not possible for a lawyer to answer Sir Farquhar

Buzzard's question categorically, or to prescribe a formula for attributing responsibility. All the lawyer could do was to proceed on the evidence, and so hand the ball back to the doctor. He submitted that there was no true distinction between the physical and the psychological. The pathological psychological state, if all were known, would be found to be associated with some kind of undetected physical injury in the region of the brain. The discussion might aptly be concluded with the legal phrase: "Cur: adv: vult"—"The court will take time to consider judgment."

SECTION OF ORTHOPÆDICS.

AT a meeting of this Section held on Dec. 6th, Mr. W. ROWLEY BRISTOW, the President, being in the chair, a discussion on

FRACTURES OF THE SPINE.

was opened by Mr. GEOFFREY JEFFERSON (Manchester). Injury to the head was, he said, very important as a cause of cervical fracture or cervical dislocation. Direct violence to the spine was always an uncommon cause of vertebral disruption, and most spinal injuries were caused by force applied at a distance from the spine. If the injuring body was hard, and particularly if it struck at high velocity, a fracture of the skull would result and the full force of the injury would be absorbed by it. If, however, the wounding object was soft and very heavy, the spine—particularly its cervical portion—would be the part to sustain injury. In rare cases the head might be "mushroomed" down on to the spine, and then a ring of bone was driven around the foramen magnum up into the skull. Usually the bone in this area offered resistance, and if the skull failed to break elsewhere, the force acted on the spine. Perhaps in that case the atlas would be broken, or possibly some lower vertebra.

Mr. Jefferson explained that the vertebral column consisted of two parallel fused cylinders, of differing structure and purpose. The anterior consisted of the vertebral bodies and intervertebral discs, and its general purpose was to support weight. From the neural arches a number of transverse and spinous processes were thrown out, their chief purpose being to allow of muscular attachment. If the spine was violently compressed from above, the anterior pillar gave way more rapidly than the posterior, because of its spongy bone and the intervertebral fibrocartilages. For this reason flexion followed immediately on compression. The neural arch contained a considerable cancellous element. The tendency of the vertebral column to flex when compressed was aided by the protective reflex described by Magnus, by which any unexpected touch on the head caused the person to bend forward suddenly and involuntarily. Flexion of the neck alone by a strong driving force applied to the head would result in a dislocation, roughly at the junction of the middle and lower thirds. If the neck remained upright and the head itself was violently extended or flexed, a common result was a fracture of the odontoid process. Violent extension was a much more uncommon mechanism of spinal injury than flexion, and introduced the question of torque fractures of the pedicles. Sometimes severe injury followed slight movements, as in the case of a woman brushing her hair, or in diving. Kimmell's disease, which was described before the days of X rays, was a wedge compression fracture, a so-called spondylitis traumatica.

With regard to treatment, he said, the ideal always in the mind of the surgeon was reduction, but the cases one most wished to reduce were the hardest to deal with in that way. Most orthopædic surgeons seemed to have formed the opinion early in their career that they would have fractured spines with cord injury by operation, but the resultant mortality had cured their optimism. In a series of 85 patients, 16 died, 16 of them in the first week, and he was sure that none of those would have been saved by operation. Therefore operation should only rarely be undertaken, and only in cases in which pressure could be proved to exist. The general surgeon often erred because he was so apt to regard every case of fracture of the spine as a case of pressure. It was impossible to know from the skiagram what cases sustained damage to the cord.

The Neurological Standpoint.

Dr. GEORGE RIDDOCH said that all would agree that the more important consideration in these cases was as to whether or not the cord had been damaged. The crux of the matter, therefore, was, what to do if the cord was damaged, and he considered the subject largely from this attitude. The most common hæmorrhagic disturbance was the distribution of minute hæmorrhages in the cord in the region of the injury. Part of the disturbance of function in cases of spinal injury was transient and physiological, due to œdema, &c., and only part was the result of permanent structural defect. In the final stage of severe cases sepsis usually played a part, but even these patients might live a long time. Cadwallader had had a patient who lived 23 years after she broke her back. It was often a difficult problem to decide what was the exact level of the main spinal injury. Diagnosis of this depended on three groups of changes: sensory, motor, and reflex, the sensory being the most valuable. Hæmorrhage outside the cord did not cause spinal compression. Indriven fragments might look like a tumour in the skiagram, and if they caused pressure symptoms it was only in a passive way, and they did no more than cause fibrosis or a local encystment of spinal fluid. Under no circumstances should operation be done in these cases during the period of spinal shock—i.e., not within two to six weeks after the injury. After this period the indications for fairly early operation were: (1) the presence of gross bony deformity; (2) an arrest in the recovery process or an increase in the symptoms after a latent period; and (3) the presence of severe, persistent root pains. Operation should not be attempted if the cord was found to be completely divided by gross displacement of vertebræ and if there was failure of conductive power. There was more justification for operation when late paralytic troubles supervened, such as progressive meningitis circumscripta serosa, with increasing root pains spreading upwards and downwards.

Discussion.

Dr. BERTRAM SHIRES, speaking as a radiologist, urged the routine skiagraphy of all cases of injury, not only for ordinary diagnostic purposes, but from a medico-legal standpoint. So frequently when a case came to court no radiogram was available, when that would have been a vital factor in the decision.

Dr. GEORGE STEBBING gave an analysis of cases of spinal injury in the Lambeth Hospital, remarking that there had recently been a steady increase in this class of case, probably due to street accidents being more common. Of 32 cases admitted in the last three years, 14 had gross injury to the spinal cord. Five of them died in hospital, one 50 years after the injury, one 122 days after the injury, and others eight, two, and one day after being injured. Only a minority of spinal fracture cases were associated with gross nerve lesions. The decompression operation had not proved of value in the series he had come into relation with. He had never seen a case of this kind die of bedsores or pneumonia; the great factor in the final stage was pyelonephritis, which was very difficult to prevent.

Mr. THOMAS OPENSHAW agreed that in most cases of spinal injury the final factor was pyelonephritis. Prolonged immobilisation was essential for the recovery of many of these fracture cases. Stereoscopic skiagrams should always be taken. The orthopædic surgeon should especially be au fait with cases of injury of the spine in which there were no nervous symptoms. He related some interesting cases of his own.

Mr. ST. J. D. BUXTON showed skiagrams of a number of cases of his own which had presented problems in diagnosis and treatment. In regard to treatment, apart from reduction, he said, three things had impressed him: (1) the condition of the patient's respiratory system, (2) the abdominal condition, (3) the presence of sores. In cases which showed a prospect of recovery, the condition of the bladder should receive special care. He feared that was not always the case.

Dr. J. F. BRAILSFORD also showed a series of skiagrams of cases of spinal injury, deducing the lesions of each.

Mr. J. EVERIDGE concentrated on the seriousness of the urinary symptoms in spinal injury. Early catheterisation very often introduced sepsis. Sir J. Thomson-Walker had laid stress on the value of early suprapubic cystotomy, and the speaker thoroughly agreed with him.

Mr. BERNARD ROTH concluded the discussion by describing skiagrams of two cases in his own practice.

MEDICAL SOCIETY OF LONDON.

AT a meeting of this Society held on Dec. 12th Mr. HERBERT W. CARSON, the President, occupying the chair, a discussion on

INSOMNIA

was opened by Dr. EUSTACE CALLENDER, whose address we publish on p. 1280.

Dr. GORDON HOLMES spoke on sleeplessness due to, or associated with, neurological conditions. The nature of sleep, he said, had been a matter of speculation and discussion since the time of the early Greeks; it had remained for Pavlov, by a series of brilliant researches, to bring the subject into the region of exact physiological investigation. His work was based on a study of the conditioned or acquired reflexes—i.e., special reactions to changes of surroundings—which Pavlov said were the reactions of new nervous connexions brought into existence in education and training. All these reflexes depended on the activity of the cerebral cortex. Under certain conditions the stimuli which at first evoked positive reflexes became inhibitory, arresting the active functions of the cortical cells concerned in the reflex; it was an active protective process, guarding the cells from functional derangement as a consequence of over-use or strain. It enabled the reflex centre to acquire localised sleep, and so recuperate. Repeated excitation at many cortical points might inhibit the whole cortex, unless kept in bounds by antagonistic nervous processes. This was in fact sleep, for sleep and internal inhibition were identical. In animals sleep was easiest induced by thermal and tactile stimuli. Moreover, a well-established rhythm in the succession of wakefulness and sleep might incite at predetermined periods the onset of sleep, apart from cortical fatigue.

Insomnia of neurological origin could be divided, he said, into the organic, the psychogenic, and the primary. Of these the least important was the organic, but insomnia as a primary symptom occurred in nervous disease, and the best instance was encephalitis lethargica. In that disease the sleep disturbance was almost certainly due to lesions in the region of the hypothalamus, or the grey matter around the floor of the third ventricle, where it was practically certain a "sleep centre" resided. Occasionally insomnia was a symptom in early general paralysis of the insane, especially during the restless and exuberant phase. In later stages lethargy was more usual. Sleeplessness was often, too, a prominent symptom in cerebral arterio-sclerosis, especially when associated with high blood pressure; usually it was found in the type characterised by mild headache, slight vertigo, and a rapid tiring by effort, with failure of mental concentration.

To the organic group belonged the sleeplessness due to certain poisons, such as alcohol or endogenous toxins. But it was in the functional or psychogenic nervous disorders that the neurologist most often me with severe insomnia. It was one of the commones symptoms in all forms of neurasthenia. Sometime such a patient slept for a sufficient number of hour but was not refreshed thereby. In the traumati variety, and in that due to emotional factors, slee was often disturbed by dreams. Sleeplessness migh also be a troublesome feature in hysteria, but here th complaint was apt to be exaggerated.

The most difficult forms of insomnia to treat wer those in the anxiety neuroses. Sometimes in sleeple persons no organic or psychogenic causal factor coul be discovered, and in some of these the inability t sleep enough seemed to be constitutional, ofte hereditary. In women of this type severe slee disturbances were liable to occur at the climacteric.

Treatment.

The cause of the sleeplessness should first be soug to be removed, but this was often a mere counsel perfection, as the insomnia had probably establishe a vicious circle. It was most important, especially the neuroses, to break the habit of sleeplessness quickly as possible. Often a few nights' good slee however obtained, restored the patient's confiden and established a mentality more favourable normal rest. Comfort and warmth could not neglected, and a change of surroundings was oft very beneficial. Most normal people slept best aft taking moderate exercise. In neurotic persons a bre from work and the substitution of open-air gam was of advantage. But there must not be overtire ness. Some patients, on the other hand, slept bett after a period of complete rest; this was especial so in the more exhausted types of neurasthenia, a in tired-out and poorly nourished people who we otherwise normal. Physical treatment could be great value in sleeplessness, and massage was the mo important of these, especially in exhausted state It was useful also when the symptom was associat with cerebral arterio-sclerosis. The masseuse mu be sympathetic, as annoyance might counteract t benefit. At first fairly vigorous, the massage shou become more gentle, and then the patient should made warm and comfortable for the night. excitable states massage was useless, and might disturbing. Hot baths late in the evening oft promoted sleep, though their effect might be to ma the patient more wakeful. In most cases the physici could not dispense with drugs, however much might wish to, and he thought the danger from th use had always been grossly exaggerated. The ri of abuse and prolonged administration was great in neurotics. Drugs were either sedatives or tr hypnotics. Of the former the bromides were the mo useful, especially in the treatment of the neuros Pavlov had shown that bromide in large doses quick cured fatigue and regulated the activity of the nerve system by strengthening the intensity of the inter inhibition. Larger doses of bromide should be giv than was the custom. If bromide alone would n induce sleep small doses of chloral could be add but only for a short time. Sometimes alcohol was sa and more effective than ordinary hypnotics, but on for those unaccustomed to its use. When a patie had difficulty in getting to sleep, but slept soun thereafter, medinal could be given, as it was quick absorbed. Wakefulness in the early hours called sulphonal, whilst light sleeping required bromid Several small doses were usually better than one la one. Taken all round, medinal was one of the m efficient of the hypnotics.

Sir MAURICE CRAIG agreed that lack of sleep w more damaging to the young than to the adult; a person with a psychopathic inheritance, or who w debilitated by illness or anxiety, might quickly beco confused if his sleep suddenly failed. He did propose to deal with the case of the insane; he w more attracted to the preventive aspect. Some peo must have their sleeplessness quickly relieved, serious changes would result. Generally the first th to do was to procure sleep for the patient.

deprecated, from the point of view of the patient and the public, the use of the term "sleeping draught." Except preparations like paraldehyde the drugs given were not really sleeping draughts, for they would not compel sleep if given in the daytime to a person going about his usual avocation. The term sleeping draught sometimes raised fears in the patient's mind, and might result in his refusal to use what was prescribed. Bromides, said Sir Maurice Craig, were very valuable in small doses, but if large doses were needed he regarded them as distinctly dangerous. It was not uncommon to find persons who were taking bromides in a confused mental state, the mind clearing when their administration was stopped; they also upset the digestion and were toxic to the skin. Paraldehyde was safe, but had great disadvantages in that its excretion took place through the respiratory tract, and hence the bronchial tubes were liable to be blocked by mucus, an important consideration in the aged. One of the most valuable sedatives was chloral, and Sir Maurice Craig preferred it to bromide. Five-grain doses could safely be given several times in 24 hours. He had never seen any ill-effects from the barbitone group, but he did not feel comfortable about prescribing sulphonal, save in quite small doses. He was against changing the hypnotic when he found one to suit the patient.

Sir WILLIAM WILLCOX thought insomnia should be approached from a general point of view, and that it was a mistake to begin treatment by resorting to drugs; general measures should first be given a good trial. The subject was very difficult, because of the variety of cases met with. In his experience the insomnia associated with delirium tremens and with choreic states would often yield better to a hot pack, or measures of that kind, than to drugs. In illnesses such as acute pneumonia, in which the toxins of the disease caused insomnia, it was necessary to secure sleep in the first few days before organs such as heart and kidneys were damaged by the toxæmia. For such cases, in the first three days, it was his custom to give hypodermically morphia, gr. $\frac{1}{8}$, and atropine, gr. 1/200, and when the struggle was reaching its height he left the patient to fight it out without running the risk of producing damage by hypnotic drugs. When, in neurasthenic and psychasthenic states, it was necessary to use hypnotic drugs, caution should always be observed, and their administration should not be long continued. It was the long continuance which was especially to be deprecated. And heroin seemed a particularly dangerous drug in this respect. He did not subscribe to the view that only unstable people became drug addicts; if heroin were given nightly for a month to members of a football team he believed half of them would become addicts. Many drugs produced a tolerance which was a danger. However valuable drugs might be for insomnia it must always be remembered that they were toxic. Bromural and adalin were valuable drugs, and he had not met with serious effects from them.

Dr. F. M. R. WALSHE said that apart from references to the great work of Pavlov almost the whole of this discussion might have taken place 30 years ago. The time had arrived when there should be a restatement of the problem of insomnia. Was the insomnia of anxiety neurosis, of nocturnal delirium, and of high blood pressure the same? Dr. Gordon Holmes's remarks contained the essence of the problem. Bromide was not a cerebral sedative, but an active stimulant. The information required about these drugs did not concern their toxic effects, but their normal pharmacological action. The problem needed re-orientation based on recent physiological knowledge.

Dr. ELLIS spoke especially of the difficulties of assimilation as contributing to sleeplessness. If something were given to empty the stomach between 3 and 4 A.M. the sleep broken at that time would often be restored, as, normally, the pylorus did not open during sleep.

Dr. C. P. SYMONDS said it had been pointed out that sleep was not invariably associated with low blood pressure and dilatation of the vessels of the limbs. In early psychoses it was difficult to distinguish between cause and effect. When a patient with anxiety neurosis was worried about his capacity to sleep it was well to give a hypnotic three nights in succession, telling the patient he could later on have a dose by his bedside to take in case of need. The knowledge that it was there generally enabled him to manage without it, as it banished his anxiety. He was a great believer in the efficacy of changing the patient's surroundings to break the wakeful habit.

Dr. GORDON LANE questioned whether sleep was ever so profound as to prevent the sleeper being aware of sound and other stimuli. When the blood was charged with waste products, which were probably doing much to keep up the stimulation which resulted in wakefulness, little good was likely to come of an intensive use of hypnotics.

TUBERCULOSIS SOCIETY.

AT a meeting of this Society, held on Nov. 18th, Sir STCLAIR THOMSON, the President, took the chair, and Dr. G. T. HEBERT read a paper on the

Treatment of Tuberculous Empyema by Replacement with Air.

He said that the tuberculous origin of an empyema, if not proved by the discovery of tubercle bacilli in the fluid, was inferred from the absence of secondary organisms in cases which gave evidence of old or recent tuberculosis in the corresponding lung. Tuberculous empyema, though an uncommon complication of pulmonary tuberculosis, was one which called for adequate treatment, because of the large quantity of fluid which collected—unless prevented by extensive pleural adhesions. The presence of a large volume of fluid, amounting sometimes even to 8 or 10 pints, not only collapsed the lung on the affected side, but also through displacement of the mediastinum compressed the already engorged lung on the sound side, causing dyspnœa and cyanosis. The fluid gradually increased in consistency and gave rise to a variable degree of toxæmia. If the condition remained untreated, the patient was liable to develop secondary infection, amyloid disease, or hypertrophic osteo-arthropathy.

The two main objects of treatment were: (1) to abolish toxæmia by removal of the fluid and by checking and preventing its reaccumulation; and (2) to relieve dyspnœa, by reducing the mediastinal displacement, thus allowing the lung on the healthy side to function normally, and by promoting healing of the pleura, which in time would allow of the partial expansion of the collapsed lung. The disadvantages of simple aspiration were mainly: (*a*) the distress caused to the patient by the removal of large quantities of fluid; (*b*) the difficulty of complete removal, this being also liable to cause sudden re-expansion of the lung; (*c*) reaccumulation of the fluid; (*d*) inadequate healing of the pleura. Rib resection was inadmissible, because of the grave risk of secondary infection. Gas replacement, on the other hand, repeated at intervals until the fluid ceased to accumulate, had many advantages. The pleural cavity could thereby be emptied almost completely; there was no marked change in intrapleural pressure, and no sudden displacement of the mediastinum; progress could readily be followed by X ray examination; the pleura was kept dry and consequently healed more readily, while any further deposition of fibrin was stopped; absorption of the gas in the intervals between replacements exerted an even and continuous traction on the diseased lung. Dr. Hebert believed that the results obtained by gas replacement were thus very much better than those obtainable by any other method. The patient was left with a respiratory capacity only slightly less than

normal, and recurrence of the empyema was impossible because the layers of the pleura were firmly adherent. The possible risk of reactivating pulmonary tuberculosis by expansion of the diseased lung in cases of tuberculous empyema was, he thought, more than counterbalanced by the prospect of almost complete restoration to health which was afforded by treatment by replacement.

Diagnosis could be made from the history and appearance of the patient associated with definite physical signs: fullness of the chest on the affected side, and relative immobility, especially of the lower part; absence of any resonance on percussion in this area; loss of breath sounds, of vocal resonance and of fremitus; and displacement of the mediastinum towards the opposite side. The nature of the fluid could, however, only be ascertained by exploration which should be undertaken in all cases of effusion.

With regard to the method of production, Dr. Hebert pointed out that tuberculous empyema could be produced in one of four ways: (1) from a simple serous effusion, the change usually taking place within a year from the onset of the effusion; (2) after spontaneous pneumothorax, this being looked upon by Fishberg and others as the commonest method of production; (3) as a complication of artificial pneumothorax, in which the serous effusion met with in about 50 per cent. of cases became purulent; and (4) from rupture of an abscess.

Dr. Hebert then gave details of 11 cases treated by gas replacement, in the majority of which an immediate improvement took place in the general condition of the patient, followed eventually by expansion of the lung and obliteration of the pleural cavity. In the remaining cases treatment had not been completed, but was progressing satisfactorily. In five cases the tuberculous pus was produced by the first method described above, in three cases by the second method, and in one case by the third. Two cases of hæmorrhagic effusion were included for comparison. In all these cases the fluid showed no secondary organisms either in the film or on culture. Tubercle bacilli were found in large numbers in the film in two cases.

Discussing the technique of the treatment, Dr. Hebert said that when an attempt was to be made to empty the pleural cavity a site should be chosen which would enable it to be tapped at its lowest point. For first replacements two needles were almost invariably used, the smallest size for withdrawing the fluid, and a Riviere refill needle, inserted higher up, for introducing the air from a Lillingston-Pearson type of pneumothorax apparatus. In subsequent replacements, however, when the amount of fluid to be withdrawn was about a pint, only one needle was used. The interval between replacements depended upon the rate of reaccumulation of the fluid, but it was probably wise to perform a replacement as soon as a pint had collected. In the average case the second replacement took place two weeks after the first, the interval being increased by one week for each subsequent replacement. As a rule, the number of replacements required was ten, extending over a period of about a year. Patients were well enough to return to work in about three months from the beginning of the treatment. Out of a total of nearly 90 replacements only one was followed by an abscess in the track of the needle, this being due to blocking of the needle by a long stringy clot which protruded from the wound when the needle was withdrawn. So far in his treatment of cases of tuberculous empyema there had been no need to resort to phrenic avulsion or thoracoplasty, and it was hoped to avoid these operations even in one of the cases cited in which the empyema was of seven years' duration.

Dr. Hebert emphasised the value of X ray examination in the management of the treatment. By this means it was possible at once to ascertain the degree of cardiac displacement, the state of collapse of the lung, the degree of completeness of replacements, the thickness of the pleura in some cases, the condition of the lung on the opposite side, and the presence of any cuplike adhesions which might hold some of the fluid.

A number of radiograms were shown, and the meeting ended with a short discussion.

JAMES MACKENZIE INSTITUTE FOR CLINICAL RESEARCH.

ON NOV. 22nd Prof. ARCHIBALD YOUNG read a paper on

Some Surgical Aspects of Gastric and Duodenal Ulcer.

He began by referring to a statistical study,[1] a his clinic, of the efficiency of modern methods o diagnosing ulcers of the stomach and duodenum, an of the value of gastro-jejunostomy in their treatment The diagnostic error had been found to be small, an to depend not upon any fault in the methods, bu upon erroneous deductions from the data which the provided. In that series 67 per cent. of patient had made a complete recovery after gastro jejunostomy, while 83 per cent. had been greatl or considerably improved. The operation done wa the usual posterior anastomosis, without pylori exclusion.

The new series upon which Prof. Young's presen paper was based included 146 definitely ascertaine cases, of which 12·3 per cent. were gastric, 28·08 pe cent. duodenal, and 59·6 per cent. pyloro-duodenal Of these, 122 had occurred in males, 24 in females. H believed that many pyloro-duodenal ulcers, althoug often classified as gastric, had more in common wit true duodenal ulcers than with those of the gastric type He still performed gastro-jejunostomy as an almos routine operation for peptic ulcer, and found i especially valuable in duodenal and pyloro-duodena cases. In his experience pneumonia was the chie cause of post-operative death; its incidence might b diminished by careful nursing, and—since the con dition was often of embolic origin—by gentleness i handling the ulcerated segment. The therapeuti effect of gastro-jejunostomy was due to a combinatio of factors, of which drainage and access to th stomach of the alkaline contents of the duodenu were important. It was unnecessary to occlude o divide the pylorus to ensure relief. Excision of th ulcer was generally valueless, unless combined wit some method of securing gastric drainage. Plasti operations at the pylorus were no more efficaciou than simple gastro-jejunostomy. Gastrectomy h reserved for large and adherent gastric ulcers, believin that so severe an operation was seldom justifiabl for more limited lesions. Partial gastrectomy did no eliminate, though it might lessen, the risk of recurrin ulceration. Post-operative jejunal ulcers were sai to occur in from 1–3 per cent. of cases, and amon the possible predisposing factors were high residua gastric acidity, unsuitable suture material, and loca infection. Prof. Young had so rarely encountere post-operative ulcer that he felt inclined to add geographical factor; he had not had a case in th series under review.

Much of the advance in the treatment of perforate ulcer was due, said Prof. Young, to Murphy, who ha consistently taught rapidity in operating and th minimum of interference. Gastro-jejunostomy wa rarely required either at the primary operation o later, as Nature was able to a considerable degree t correct the narrowing which might follow infoldin of the ulcer. Prof. Young preferred to drain the are of perforation locally. With regard to diagnosi most stress should be laid on a good history. Clinic and laboratory tests were of great help, but th interpretation of the results of X ray examinatio was very liable to error.

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[1] THE LANCET, 1923, i., 681.

Reviews and Notices of Books.

SMALL-POX AND VACCINATION.

Handbuch der Pockenbekämpfung und Impfung. By Prof. Dr. OTTO LENTZ and Prof. Dr. H. A. GINS. Berlin: Richard Schoetz. 1927. Pp. viii.+900. With 108 illustrations in text and 7 coloured plates. M.50.

THIS large volume is a valuable compendium of past and present knowledge on the subject of small-pox and vaccination; its appearance is welcome at a time when in this country the occurrence of small-pox is increasing and the practice of vaccination is diminishing. The monograph contains 19 chapters, written by 16 different authorities, and opens with an historical section by Holländer, in which he relates the sources of the various kinds of vaccine lymph.

At the beginning of the nineteenth century vaccination proved a welcome and safe preventive against a severe form of small-pox. Later vaccine lymph, which had for years been passed from arm to arm, became so attenuated that only small and uncharacteristic vesicles resulted with uncertain protection. A return of vaccinia to the calf revived its activity and protective efficiency. Later still a weakening of calf lymph made necessary the attempt to renew the vaccine stock by inoculation of the calf with small-pox material, so as to start a fresh strain of vaccinia. This was eventually done, and incidentally established beyond doubt the essential unity of the two clinical conditions. The first recorded success in variolising cows was by Gassner about 1807 and later by Robert Ceeley in 1839. As illustrating the difficulty in carrying out this operation it may be recalled that Badcock in 1840, as the result of between 500 and 600 inoculations, succeeded on only 37 occasions in infecting cattle with variola. From them he obtained vaccine lymph which was extensively used. The serious difficulty found in infecting calves with small-pox directly led to the use of the monkey or the rabbit as a more susceptible intermediate host. These animals produce vaccinia which is active for man. Rabbits were first used by Calmette and Guérin in 1901 for testing and carrying on strains of vaccinia. The lymph known as "lapine" has proved a very useful and active seed lymph for the calf, which latter animal has remained the chief source of vaccine for human use. A new kind of vaccinia inoculum, known as neurovaccine, was introduced by Levaditi in 1923. It consists of the brains of rabbits inoculated intracerebrally with vaccine lymph. It is claimed by Levaditi that neurovaccine is of uniform and high activity, and does not contain any bacteria. The manufacture of lymph and recent experimental and strictly scientific inquiries are well summarised in the book.

A chapter by Gins deals with the objections to vaccination, especially to compulsory vaccination, which have been put forward at different times. The evidence for the high degree of protection against small-pox given by vaccination and revaccination is well set out, as is natural in a book coming from Germany, where these measures are very thoroughly carried out, and resulting freedom from variola is almost complete. The harmful effects which result from careless vaccination are dealt with at some length by Czerny and Opitz. The occasional occurrence of encephalitis after vaccination during the last few years is discussed, and the suggestion that the nervous disease is due to an added infection is held to be the most probable explanation.

In the section on pathology of variola and vaccinia special attention is drawn to the regular appearance of Guarnieri bodies in the rabbit's cornea following infection. These have been used as a means of diagnosing variola and of testing the strength of vaccinia according to the methods of Paul and of Gins. In the clinical and epidemiological accounts of small-pox the two different types of the disease are recognised. These are the oriental severe type, and the mild type now present in this country and known elsewhere—e.g., Peru, Australia, and Canada, and sometimes named alastrim. The identity of the virus in these two clinical forms is scarcely open to dispute, but its virulence and immunising properties show great differences in the two cases. When and in what circumstances the mild may revert to the severe form is quite unknown. The relations between animal and human pock diseases are dealt with, and the experimental evidence of cross immunity in this class of infections is discussed. The existence of any community of virus between vaccinia and fowl-pox is not accepted. On the other hand, that the same virus may be, and in many cases is, responsible for small-pox and vaccinia in man and monkeys, and for cow-pox, sheep-pox, goat-pox, horse-pox, and swine-pox is agreed to as proven. The immunity to vaccinia and small-pox is in part, at any rate, humoral, and due to antibodies which can be found free in the blood, but the existence of an additional "tissue" immunity in the skin is considered possible but not, so far, satisfactorily demonstrated.

A careful summary is given of the observations on the wide distribution of vaccinia virus in the body of vaccinated animals which has been shown to exist by Ishigama, Blaxall, Ohtawara, and others. The histology of variola and vaccinia are dealt with, and the view taken by Paschen, Prowazek, and Levaditi, that in vaccinia the seat of the primary pathological process and the multiplication of the virus is in ectodermal cells, is recorded, but Ledingham's recent evidence pointing to the infection being essentially in the reticulo-endothelial system is not quoted. The various attempts and failures to cultivate the virus in ordinary media are narrated, and the work of Parker and Nye, in which they appear to have propagated it in cultures of testicular tissue, is spoken of as hopeful. The more recent demonstration of remarkable increase of vaccinia virus in cultures of embryonic chicken tissues had evidently not been published early enough for inclusion in this article.

In conclusion it may be said that this book is a most useful and judicious summary of knowledge on the whole range of its subject matter. References to the literature are adequate, even if placed rather awkwardly at the end of each chapter and not in a general index of authors. There is, however, a general subject index at the end of the book.

THE ENDOCRINES IN GENERAL MEDICINE.

By W. LANGDON BROWN, M.D., F.R.C.P. Lond., Physician to St. Bartholomew's Hospital. London: Constable and Co. 1927. Pp. 144. 7*s.* 6*d.*

THIS little book forms one of the Modern Medical Monographs series, edited by Prof. H. MacLean, and is written primarily for the general practitioner, who will find in it an account of the endocrine system and its diseases presented in a form which should certainly be of service to him. The system is here treated as a whole rather than as a number of isolated units; there are chapters, for instance, on the biology of the group, behaviour in childhood, effects on general metabolism, and relationship to the psychoneuroses. This method of presentation differs from that of most other text-books on the subject, and the outlook is welcome. There are, however, other chapters devoted to the more important individual glands and their diseases, notably the thyroid, the parathyroids, the pituitary body, and the adrenals. In these sections Dr. Langdon Brown has drawn largely from his own personal experience, both in the laboratory and at the bedside. Useful information is given with regard to recent methods of investigation of these syndromes and their treatment, and the observations of other clinicians and laboratory workers, where they have a practical application, have been incorporated in the text.

There is a final chapter on endocrine therapy, which is necessarily cautious in tone. It is pointed

out that therapy has not kept pace with the increase in our knowledge of the endocrine system. In one sense this has been as well; for the way in which glandular and other extracts have often been ignorantly given in the past would inevitably have done harm had they been potent. Fortunately, the majority were not. At the present moment Dr. Langdon Brown considers that reliance can safely be placed on thyroid and pituitary medication. Insulin has, of course, already proved its worth. Collip's parathyroid extract is a new preparation, which is of great value in tetany due to parathyroid deficiency, and the ovarian extract of Allen and Doisy, which is now available for general use, promises, when its effects have been more fully investigated, to be of considerable practical utility. Adrenalin, the secretion of the adrenal medulla, is well known to produce beneficial effects in certain diseases, notably asthma. Its limitations in Addison's disease are fully discussed. Dr. Langdon Brown is frankly sceptical as to the value of extracts of the adrenal cortex, and he has never seen definite results follow the administration of extracts of thymus, pineal, prostate, placenta, or mammary gland. The therapeutic use of endocrine preparations is much in need of such a well-considered and authoritative opinion, which strikes a judicious mean between that of uncritical and over-enthusiastic endocrinologists and the cautious, if not agnostic, physiologist.

CLINICAL NEUROLOGY.

For Practitioners and Students of Medicine and Medical Students (a free translation, with changes and additions, of the book by Prof. H. Curschmann, Rostock). By EDWARD A. STRECKER, A.M., M.D., Professor of Nervous and Mental Diseases, Jefferson Medical College, Philadelphia; and MILTON K. MYERS, B.S., M.S., Neurologist to the Philadelphia Northern Liberties Hospital. Philadelphia: P. Blakiston's Son and Co. 1927. Pp. 410.

A BOOK of this kind is apt to prove unsatisfactory, however laudable the motives of its authors. Believing, as they appear to do, that "there exists a real need for a brief clinical exposition of neurology," they have thought of supplying it by furnishing the student with a "boil-down" of a German text-book conceived on considerably more ambitious lines. No illustrations or diagrams relieve its pages, though neat little paragraphs, enclosed within rules, head sections on different diseases and contain snappy summaries quite in the best medical journalese. Life is too short, apparently, and medical art too long, to refer to well-known signs except as "Romberg," "Babinski," and so forth. If the general teaching of the book is accurate enough it scarcely compensates for a condensed brevity resulting in such erroneous statements as: "Epilepsy is a dreadful disease;" for epilepsy is not a disease and in innumerable instances its manifestations are benign.

POSTENCEPHALITIC RESPIRATORY DISORDERS.

By SMITH ELY JELLIFFE, M.D., Ph.D. New York and Washington: Nervous and Mental Disease Publishing Company. 1927. Pp. 135.

OF the various menacing and therapeutically embarrassing sequelæ of epidemic encephalitis an unenviable place must be given to disorders of the respiratory apparatus, because of their complexity, frequency, and intractability. Dr. Jelliffe has performed a useful task in collecting and collating a large number of recorded cases and in adding personal cases in considerable detail. With so much material problems of classification and physiological grouping can receive a more satisfactory solution than is possible for the student of isolated examples. Nothing is clearer than that implication of more than merely one functional level is responsible for the clinical varieties of this respiratory affection. In some cases bulbar, in others pontine, mesencephalic, thalamic, cortical mechanisms can be demonstrated to be playing a part. The author goes further, holding that in other examples the trouble has a psychopathological basis, and evidently favours such views as that it may be a representation of a "larvated masturbation," that some of the phenomena are "loosened bits of anal-erotic functioning," and what not. Of discussions of this kind the general remark may be made, that they confirm the believer in his belief but leave the sceptic sceptical.

ANATOMY OF THE NERVOUS SYSTEM.

Anatomie élémentaire des centres nerveux et du sympathique; vie de relation et vie végétative. By P. GILIS, Professor of Anatomy in the Faculty of Medicine of Montpellier. Paris: Masson et Cie. 1927. With 35 diagrams and one plate. Pp. 225. Fr. 20.

THAT books on the anatomy of the nervous system continue to appear is doubtless all to the good, if it stands for recognition of the necessity of a knowledge of neuro-anatomy as a basis for any further study of that system. Certainly the student has a far wider choice in this respect than his predecessors of 20 or 30 years ago. Prof. Gilis's little manual deals with the matter from a physiological viewpoint mainly, in that only the broader lines are drawn in the picture, while histological details are omitted and throughout its pages the correlation of function with structure is carefully sketched. The diagrams reach a high standard of clearness and seem to be remarkably accurate, on the whole. In Fig. 14, however, we consider the vestibulo-spinal tract is assigned a position in the cord that is rather too lateral, and this would appear to be the case also with Helweg's tract. That tectospinal and reticulospinal tracts should be omitted is doubtless an oversight. In Fig. 10 the apparent origin of the twelfth nerve is placed at a somewhat higher level than that usually given for it. The sections dealing with the sympathetic system are unusually full and the relations of its parts are clearly expressed. With this unambitious manual for a guide the student should find the way smoothed for him when he begins his acquaintance with the nervous system.

The Anatomy of the Nervous System, from the Standpoint of Development and Function. Third edition, revised. By S. W. RANSON, M.D., Ph.D., Professor of Neuroanatomy, Washington University School of Medicine. London and Philadelphia: W. B. Saunders Co. With 284 illustrations, some in colours. 1927. Pp. 425. 32s. 6d.

THE third edition of Prof. Ranson's text-book of nervous anatomy is little altered from its predecessors. New material incorporated deals with recent advances in knowledge of neuroglia and its varieties. Revision has been carefully carried out, in accordance with newer conceptions of organisation and function of the nervous system. In its present form the book provides a useful foundation in macroscopical and microscopical anatomy, considered always with an eye to the physiological correlates of given structures, thus supplying a dynamic as opposed to a static presentation. With clear diagrams and with numerous bibliographical references it is wonderfully complete, and for the novice in neurology it should prove highly serviceable.

SAFEGUARDING OF INDUSTRIES.—The question of renewing Exemption Orders Nos. 1, 2, 3 and 4, which are due to expire on March 6th, 1928, is now under consideration of the Board of Trade. The articles covered by these exemption orders include barbitone, dial, didial, guaiacol carbonate, hydroquinone, methyl sulphonal, phenacetin, phenazone, piperazine, pyramidon-veronal, salol, sulphonal and urea. Communications should be addressed, before Jan. 8th, to the Principal Assistant Secretary, Industries and Manufactures Department, Board of Trade, Great George street, Westminster, S.W. 1.

THE LANCET.

LONDON: SATURDAY, DECEMBER 17, 1927.

SLEEP.

THE general public, while taking normal sleep very much for granted, has always been ready to marvel at pathological states of somnolence. The trance, whether hysterical or induced by hypnotic suggestion, frequently attracts the attention of the daily newspaper, and the prominence of lethargy among the symptoms of epidemic encephalitis speedily gained for that disease a widespread notoriety. Until the present century neither physiologists nor physicians have been able to offer the layman much enlightenment as to the nature either of normal sleep or of its pathology, though there has been no lack of theories, as was shown by Dr. E. M. CALLENDER in his recent address to the Medical Society of London (published on p. 1280), and in the subsequent discussion (p. 1294). Recently, however, as in the case of numerous phenomena, converging lines of research, many of which had at first no apparent relationship to sleep, have led to a focus of illumination, in the light of which a definite conception of the nature of sleep is already becoming outlined. The most unexpected of these contributions to our knowledge has been the outcome of PAVLOV'S investigation of conditioned reflexes. PAVLOV found that in the course of experiments on the conditioned reflexes of dogs the animals often unaccountably fell asleep. He was able to relate this phenomenon to the presentation of stimuli which had been endowed with inhibitory effects. This led him to adopt the view that sleep and inhibition were identical. An inhibitory process initiated at some point in the cerebral cortex by an appropriate stimulus tends to spread over the whole cortex and the animal falls asleep. According to PAVLOV, we may with equal truth describe sleep as generalised inhibition or inhibition as localised sleep. How is this conception to be brought into relation with the capacity of certain drugs for producing sleep? The first step in this direction was taken by PAVLOV himself, who showed that inhibitory conditioned reflexes were greatly strengthened by the administration of bromides, while the reverse effect was produced by caffeine. PAVLOV'S conception of sleep as inhibition is thus supported by the fact that drugs which enhance inhibition also produce sleep, while the reduction of inhibitions and wakefuiness are similarly affected. HIRSCHFELDER and SERLES have shown that the large group of anæsthetic and hypnotic drugs, in spite of their chemical diversity, possess an important physico-chemical property in common. When added to an emulsion of oil and water they convert the oil-in-water phase of the emulsion into the water-in-oil phase. The effect of this is greatly to raise the electrical resistance of the emulsion. It seems a justifiable hypothesis that these drugs act in the same way in the body and that by altering the phase of the emulsion of lipoids which constitutes the cell membrane of the neurons they reduce electrical conductivity in the nervous system, possibly at the synapses. Whatever be the correct view as to the physiological nature of inhibition, it seems necessary to believe that inhibited neurons are maintained in a distinctive physico-chemical state which renders them refractory to stimuli reaching them. Thus it may well be that in physico-chemical terms there is no difference between inhibition and sleep. This, however, does not mean, as PAVLOV seems rather to imply, that sleep and inhibition are interchangeable terms, for its localised character is of the essence of inhibition, whilst a general reduction of activity is equally characteristic of sleep. The distinction between them therefore remains of great physiological and psychological importance.

Nevertheless the recognition of a relationship between sleep and inhibition illuminates many aspects of sleep and allied states. In PAVLOV'S experiments sleep was a conditioned reflex—that is, it was capable of evocation through a process of association by many stimuli. Even painful stimuli could in this way become effective in causing sleep. So in everyday life the act of undressing and retiring to bed, darkness, and muscular relaxation are conditioned stimuli which reflexly evoke normal sleep. For this reason many people experience some difficulty in going to sleep for the first time in a strange room, where some of their usual stimuli are absent. Further, sleep, like inhibition, can itself be reflexly inhibited, and a succession of sleepless nights may, to use a mathematical term, change the sign of the familiar stimuli so that by association they now evoke not sleep but wakefulness. This explains the value of the early use of sedative drugs in the treatment of insomnia. The drug produces sleep by acting at the physico-chemical level, but by so doing it breaks the conditioned inhibition of sleep which has grown up, and re-establishes the normal response to the ritual of retirement. It seems likely that both the hypnotic trance and its associated state of suggestibility are to be explained on the basis of PAVLOV'S conception. On this hypothesis hypnosis would seem to be a condition intermediate between physiological inhibition and full sleep. Rapport with the hypnotist is a thread of wakefulness uniting the subject to the external world, but the diffuse inhibition of his judgment and self-assertive impulses compels an uncritical acceptance of the suggestions made to him. The late S. R. WILSON, whose recent death robbed the profession of a brilliant investigator, found that by causing a subject to inhale a mixture of nitrous oxide and oxygen he could produce a state of greatly enhanced suggestibility without loss of consciousness, and he attributed this effect to depression of the highest mental functions. He found also that caffeine in a similar way enhanced suggestibility, a fact which may afford a physiological basis for the destructive effect of tea-table gossip upon reputations.

Whereas physiology and pharmacology support the view that sleep is a function of the whole cerebral cortex, pathology appears in some measure to favour the hypothesis of the existence of a sleep "centre." The lethargy of encephalitis usually resembles normal sleep in that the patient can be aroused, and its constancy as a symptom of that disease would seem to be related to the predilection of the virus of encephalitis for the mid-brain and hypothalamus. It is well known that somnolence is often a symptom of tumours and abscesses in this region. On these grounds it has been suggested that the thalamus operates as a sleep "centre" by cutting off from the cortex the stream of sensory impulses. This view seems hardly tenable, for a lesion which produced lethargy in this way could scarcely fail to cause sufficient impairment of sensibility to be discovered by examination, and this is conspicuously rare in encephalitis. A possible clue to the problem is afforded by the remarkable condition known as

narcolepsy which is characterised by sudden, brief, and irresistible attacks of sleep. Narcolepsy is often unaccompanied by any evidence of disordered metabolism, but in some cases, as in the famous fat boy in Pickwick, it is associated with obesity. We are now coming to attribute many so-called symptoms of "hypopituitarism" to lesions of the hypothalamus, and there is a large body of evidence that important metabolic centres are located in this region. It seems not unlikely that changes in cerebral metabolism may play a part in the production of pathological and indeed normal sleep, and that the sleep centre which may be affected by disease is a centre which regulates the metabolic activities of the nervous system. If this were so, the physico-chemical basis of sleep would form a bridge between PAVLOV'S theory and the hypothesis of the existence of a sleep centre.

HUMAN TRYPANOSOMIASIS IN AFRICA.

IN vast regions of the tropics there is dispute to the death between man and insect, and in Africa sleeping sickness gives urgent proof that man as yet hardly holds his own in the continuing struggle. The Interim Report[1] of the League of Nations' International Commission on Human Trypanosomiasis in Africa is of special interest because the outlook of such a band of investigators is not limited by local conditions. Though much valuable work has been, and is being, done in various countries, the problems of trypanosomiasis remaining to be solved are of fundamental importance for control of the disease, and perhaps, as the Commission suggests, it is less likely to yield its secrets to isolated observers than to steady coördinate research. Already the Commission is convinced that the biology of the human trypanosomes must be studied in man himself, and in strains freshly isolated from man, and that the work can be carried out only within reasonable distance of the naturally infected areas. Since different areas are suited to different lines of inquiry, there has in the past been a tendency to local specialisation; thus, while the clinical and therapeutic studies made in the Belgian and French Congo show what can be done with abundant clinical material, nothing is yet known about the transmissibility, and little about the detailed morphology, of the Congo strains of human trypanosomes. In Uganda, where circumstances have not helped extensive clinical inquiry, most of the research has concerned the parasite's behaviour in the insect vector; whilst in other countries efforts have been directed mainly to control and eradication. The Commission points out that though this topographical specialisation is natural, and has certainly not been fruitless, there is undoubted need for freer exchange of results and ideas between the widely separated workers, for standardisation of technique, and even for "judicious" combination of methods to be applied in all infected areas. Thus would be gathered a mass of accurate information on which important conclusions could be securely based.

The present investigations have been carried out in the Kavirondo district by Lake Victoria Nyanza, and personal reports are submitted by various of the Commission's members, all of whom had previously made distinguished contributions to our knowledge of human trypanosomiasis in the African field. Prof. F. K. KLEINE finds that in the Kavirondo district there is at present no epidemic of sleeping sickness—a fact which is due rather to the small percentage of infected tsetse than to any immunity in the population. He also records the discovery of the famous posterior nuclear forms in *Trypanosoma gambiense* which shows that these are not, as was supposed, peculiar to *T. rhodesiense*. Dr. G. LAVIER contributes a study of the development of posterior nuclear forms, and states that in man *T. gambiense* may take on an appearance identical with that of *T. vivax*. This makes it doubtful whether the latter is a human parasite. Dr. LYNDHURST DUKE shows that the resistance of a trypanosome to arsenic persists after cyclical passage of the strain through the tsetse, which has a bearing on the use of atoxyl as prophylactic against human trypanosomiasis. And a strain resistant to arsenic may be resistant to antimony. He has found also that inhibition by *Glossina palpalis* of the blood of monkeys treated with Bayer 205 does not inhibit development in the tsetse of *T. gambiense*. Bayer 205 protected a monkey against infection by cyclically infected tsetse for not more than two months. Dr. L. VAN HOOF has discovered nothing to suggest the existence of any reservoir of the virus other than man (a statement which receives recent confirmation in important observations by Dr. W. H. DYE in South-East Tanganyika Territory),[2] and that there is no carrier besides glossina. The trypanosomes are transmitted cyclically; if transmission were mechanical it would lead to the formation of limited epidemic foci. Examination of the cerebro-spinal fluid is, he says, really necessary in infected cases, and the degree of change in the fluid indicates the virulence of the trypanosome and the stage reached by the disease. Dr. VAN HOOF holds that differences in gravity of the disease are due to variations in virulence of the trypanosome rather than to any character in the patient which could be explained as immunity or tolerance. The spread of the disease is favoured by occupation—especially fishing. Famine often leads to abandonment of agriculture for fishing and so to exposure to tsetses, though it must be gravely noted that the tsetse can be found in banana groves adjoining villages. Endemicity depends on occupation, and security is gained only by complete separation of hosts from trypanosomes; the virus, however, becomes weakened in endemic areas if no new trypanosomes, flies, or men be introduced. It is noted that sensitiveness to arsenical drugs varies greatly in different endemic areas, and in the same area, and evidently this variation must be reckoned with in judging of the therapeutic value of any drug.

The International Commission has gathered much other information not yet ready for publication, and has opened up a vista of research extending far beyond the term set to its continuance as a working unit. Though it may not be possible or desirable to fulfil its apparent wish to control all investigation in sleeping sickness areas, there can, nevertheless, be no doubt of the wisdom of its appointment and the value of its work.

BURIAL AND PUBLIC HEALTH.

WHEN making improvements last year in the law of coroners' inquests and death registration, Parliament took the opportunity to provide for another and by no means unimportant aspect of the disposal of the dead. Section 9 of the Births and Deaths Registration Act of 1926 enacts that the Minister

[1] Published by the League of Nations Health Organisation, Geneva, 1927. Obtainable in London from Messrs. Constable and Co.

[2] W. H. Dye: Trans. Roy. Soc. Trop. Med. and Hygiene, November, 1927, xxi., No. 3.

Health, with the concurrence of the Home Office, may make such regulations "as to the period of time a body may be retained after death in an inhabited house or other premises," as may be deemed desirable in the interests of public health. No such regulations have yet been made; it is believed that the making of them is under consideration, and it will be agreed that some such action is desirable. It is by no means unknown for a body to be kept eight or ten days after death in a small room in a crowded house. An instance, for example, is reported in which, after the deceased had died in hospital from an operation, the body was removed and carried with difficulty (and not without bruising) up narrow stairs to a room at the top of a tenement building, there to remain for as much as eight days and to be exhibited to all and sundry who from various motives had the desire to look upon a corpse. Sometimes, it may be, the reason for the delay in burial is that undertakers have difficulty in carrying out the interment earlier; more often, no doubt, the explanation is to be found in some traditional or perhaps morbid instinct which is at variance with modern standards of public health. It is a little surprising that our progressive municipalities, whose local legislation has so often set an example to the country at large, have not provided more definitely for the removal of dead bodies from dwelling-houses within a fixed period after death. Medical officers of health must often be aware of the desirability of some such provision.

Pending the making of regulations under the 1926 Act already mentioned, the existing law gives little help. The subject of burial was anciently—and for a time exclusively—a branch of the ecclesiastical or canon law. In more modern times there have been elaborate judicial utterances which have contained miniature treatises on particular aspects of burial. Such was Lord STOWELL'S judgment in Gilbert *v.* Buzzard in 1820, the case of the iron coffins. Such also was Mr. Justice STEPHEN'S charge to the grand jury at Cardiff in 1884 in Rex *v.* Price, setting out the legal attitude towards cremation, the accused having indicted for attempting to burn a child's body to avoid an inquest. The use of corpses for dissection and anatomical study was another occasion for judicial exposition. Out of all these instances the rule is to be deduced that the law presumes that everyone will wish that the bodies of those in whom he was interested when they were alive shall have Christian burial; the law declines to entertain the possibility that any other view would be contemplated. The Christian has a right to a decent funeral. The individual, it was said in Rex *v.* Stewart in 1840, under whose roof a poor person dies, is bound—if no one else has the duty—to carry the body decently covered to the place of burial; "he cannot keep him unburied . . . he cannot cast off the body so as to expose it to violation or so as to offend the feelings or endanger the health of the living." Similarly in Rex *v.* Vann, 11 years later, it was laid down that a man must give Christian burial to his dead child if he has the means of doing so; if he fails in this duty, he can be indicted for a nuisance at common law—i.e., for doing something which affects the public health, comfort, and safety; but, at the same time, he cannot be convicted and punished if he cannot afford to pay for the burial.

Such is the existing law and, though its basis is sound, it is inappropriate as a remedy to-day. The cumbrous machinery of the law of nuisance is not what is required; the neighbours in a tenement building are not likely to consult their solicitors to set that machinery in motion. We require some simple regulation which will insist that bodies are removed from dwelling-houses within a fixed period after death just as at present a local enactment can insist on the removal from a dwelling-house of a person suffering from infectious disease. The motive of public health is the same in each case. It will be necessary to provide for the accommodation of the body in the interval, if any, before burial. The mortuary is perhaps too strongly associated in the public mind with murders, suicides, and the casual tragedies of the streets or the river. In this matter of the disposal of the dead there is need to educate the public, even at the risk of interfering with the manifestation of feelings in which natural affection, religion, and custom all have part. In this task of education many can help—clergy, medical officers and practitioners, health visitors, and undertakers; their services must be mobilised in support of any action which the Ministry of Health may take.

Annotations.

"Ne quid nimis."

THE JUVENILE DELINQUENT.

Dr. Hamilton-Pearson's paper on child delinquency, which we publish on p. 1312, should be of interest to all social workers and medical practitioners. There are many who recognise the urgency of the problem, but do not know the possibilities of treatment as compared with punishment; there are others who tend to turn down all general recommendations as impracticable. That Dr. Hamilton-Pearson's approach to the subject is broad-minded they will see from his description of a group of cases in which punishment of some kind is recommended in addition to medical treatment. It should be made clear at the outset that the figures do not relate to a series of cases of delinquency as they occurred, but to a special group of cases considered serious, or suitable for medical treatment, and therefore referred for medical examination. Although it may be at first impossible to study all the young people for whom medical and psychological investigation is desirable, it is clear that the harvest of hopeless criminals will gradually diminish if even a moderate number of delinquents are properly looked after. Such enlightened care will serve as an object-lesson to magistrates, probation officers, and the general public, so that the children will be investigated at an earlier and more hopeful stage. Dr. Hamilton-Pearson's paper indicates not only methods of treatment but also possibilities of prevention, and when school clinics are able to deal with psychological as well as physical disabilities, and are in closer touch with parents and with those who deal specially with delinquents, prevention will be no idle dream; though the school clinic will never reach its fullest usefulness until the infant welfare clinic has had similar possibilities in view. This is no more than to say that some skilful person should keep a watchful eye on every child from an early age. Ideally this should be the family doctor, and many practitioners already have sufficient knowledge, combined with sympathy and common-sense, to deal with these difficult problems. Only a small proportion of young delinquents who find their way into prison are mentally defective within the meaning of the Mental Deficiency Act. At a conference reported in THE LANCET last week (p. 1255), Dr. J. J. Landers, Governor of H.M. Prison for Boys, Wandsworth, put the figure at 5 per cent., pointing out that many of the others are below the average in intelligence, whilst many are physically defective. His high tribute in this connexion to the work of the special schools is well deserved, though other agencies are responsible in part for the good results obtained. If further evidence is needed in favour of more individual treatment of children recognised at school as potential delinquents, it may be found in contributions to a discussion[1] at the annual session of the American Medical Association at Washington in May of this year, where similar conclusions were drawn and similar proposals made. In conclusion, we may refer to the suggestion that it is unwise to appoint magistrates partly as a reward for services in other walks of life. It is arguable that if such an

[1] Jour. Amer. Med. Assoc., Nov. 5th.

appointment is to be looked upon as a reward at all it should come as recognition of success in social work of some kind, and at the Ninth International Prison Congress, held in London in 1925, it was recommended that "all who wish to be magistrates should be compelled to attend lectures on psychology, sociology, forensic psychiatry, and penology." That this argument should be put forward is symptomatic of a gradual change in the functions of justices of the peace, who are nowadays expected to work in with a variety of social organisations, charitable and otherwise. The right use of their powers is becoming more and more difficult, and requires increasing knowledge of the means by which difficulties can be best resolved and abnormalities corrected. On the other hand, there are objections to making the bench primarily into a body of experts, and to do so is contrary to the English tradition by which the expert is generally used as an adviser.

SACRO-ILIAC SUBLUXATION.

THE sacro-iliac joint has not received as much attention in Europe as it has in America, where in some circles slight changes in it are credited with causing troublesome symptoms. The Boston school of orthopædic surgeons, and notably J. E. Goldthwait, have been leaders in the study of the joint and its abnormalities, but the latest study of sacro-iliac subluxation as a cause of backache comes from Chicago. In an article in *Surgery, Gynecology, and Obstetrics* for November, Dr. H. Hoyt Cox gives a useful summary of the history of the subject and of the methods of treatment hitherto recommended and practised. These methods consist of manipulation, rest, and the application of adhesive strapping or pelvic corsets, whilst for the more severe cases ankylosing operations on the joint, by means of bone-grafts and removal of cartilage, have been employed. The diagnosis of sacro-iliac subluxation or relaxation seems to be commonly made in America, although it is rare for the condition to be demonstrated anatomically, and as a rule this can only be done in the course of an operation for its relief; X rays are of little or no use in this connexion. Dr. Cox gives statistics of 80 cases under his own care. Of these, 50 "acute" cases were completely and permanently relieved by manipulation, strapping, and one week's rest in bed. Thirteen were completely relieved but relapsed. Of the remaining 17, of which only two were "acute," nearly all were relieved by treatment. None of the 80 cases was submitted to any cutting operation.

A study of such statistics and descriptions, and of those published by Goldthwait and his school, must lead to reflection on the apparent disproportion between the means of treatment adopted and the important and massive structures concerned. It is very hard to see how adhesive strapping, no matter how tightly applied to the skin, can exert any serious control over the sacro-iliac joint, even though it encircles the whole pelvis. Nor can we expect a spinal support or pelvic corset to be any more effective. The joint can no doubt be fixed—if fixation is desirable—by the bone-grafting operations of Albee, Smith-Petersen, or Verrall, but Dr. Cox's cases, and most of the others published, were cured with astonishing rapidity, without recourse to any severe measures of this kind. Abnormal mobility of this joint and obvious alteration of the parts composing it have rarely been noted, and subluxation but rarely diagnosed, in this country; yet we hesitate to conclude that the anatomical peculiarities and way of life of the citizens of the United States differ so greatly from those of the inhabitants of Great Britain as to account for the discrepancy. Moreover, it is not in this country only that doubt is entertained of the frequency of the lesion. Dr. Royal Whitman, of New York, writes on the subject with great caution in the lately published eighth edition of his "Orthopædic Surgery," and although he describes operations for the relief of the so-called subluxation, he quotes no experience of his own. Sir Robert Jones and Dr. R. W. Lovett of Boston, in their standard work published in 1923 were more outspoken sceptics. They wrote: "One of the writers has never seen a case of this type where he was able to detect abnormal mobility, although he has seen a great number of cases where there was direct tenderness over the sacro-iliac joint, much relieved by wearing a belt. The other writer has seen two cases where he believed a slight displacement of the sacro-iliac joint existed." These discrepancies in the experiences of surgeons of wide reputation and proved diagnostic skill are very puzzling. It is not merely a difference of opinion between American on the one hand and Europeans on the other, for as we have shown, two of the very foremost orthopædic surgeons of the United States have failed to encounter more than a few such cases, whereas one surgeon in Chicago has already treated 80. An international discussion on this subject might be enlightening.

VITAMIN CONTENT OF HUMAN MILK.

IN a series of papers in the *Journal of Biological Chemistry*[1] Icie G. Macy and her co-workers describe an investigation into the vitamin content of human milk. They were lucky in having at their disposal an apparently unlimited supply provided by the Detroit Wet Nursing Bureau. The milk was usually a sample from the pooled yield of 10–16 mothers in various stages of lactation, so that the difficulties often arising from the use of a non-representative supply were avoided. The women were receiving an average American dietary, and the results may therefore be regarded as pretty widely applicable. Thus far the vitamin A and vitamin B value of the milk has been examined. Before this work very few biological tests of the vitamin value of human milk seem to have been made, though inferences have often been drawn from the clinical condition of infants. Macy quotes C. Kennedy[2] and co-workers, who showed that breast-milk may vary very greatly in its vitamin A content, according to the diet of the mother. E. M. Hume,[3] working in Vienna, showed how in some cases consumption of cod-liver oil by the nursing mother may completely alter the vitamin content of her milk, whilst in others there appears to be no change. The latter cases she explained as being ones in which the mother's own body was so depleted that the vitamin was retained instead of being passed on to the baby; one mother, for instance, who received cod-liver oil and extra feeding for two months put on 43 lb. in weight without any change in the vitamin content of her milk. On the whole, however, it appears that in human beings, as in other mammals, there is a direct connexion between the diet of the mother and the amount of vitamin in her milk. Macy and her co-workers found that the value for vitamin A of human milk from the wet nursing bureau did not differ greatly from that of the milk of cows which were allowed alfalfa hay and ensilage with cereals, but no pasture. The milk was tested not only by the growth of rats but also by their power to reproduce and rear their young, and the interesting observation was made that a certain daily ration of vitamin A may be enough for a mother rat to grow, reproduce, and lactate, but that when her offspring are tested on a diet deficient in vitamin A, they may quickly show that they have little or no reserve. This observation is instructive and teaches a valuable lesson. In regard to vitamin B, Macy and her co-workers did not get so clear-cut a result, nor is it quite certain with which fraction of vitamin B they were dealing; probably it was with the anti-neuritic fraction. They concluded that "the anti-neuritic potency of mixed human milk, at least from a group of women

[1] I. G. Macy, J. Outhouse, M. L. Long, and A. Graham. Jour. Biol. Chem., 1927, lxxiii., 153, 175, 189, and 203.
[2] C. Kennedy, L. S. Palmer, and F. W. Schlutz: Trans. Am. Pediat. Soc., 1923, xxxv., 26.
[3] E. M. Hume: Med. Res. Counc., Special Report Ser. No. 77, 1923, p. 153.

eceiving the average American dietary, is very light," and further, that "it is possible that many nothers do not supply enough of vitamin B to their abies." If this conclusion is true in England, it can nly be true in the sense that there exists a partial r latent deficiency, because the expression of a more evere degree of deficiency is the development of nfantile beri-beri, as we know by reference to the hilippine Islands. There Andrews[4] made the classical xperiment of feeding puppies on the milk of human nothers, whose infants had died of beri-beri; within hree or four weeks the puppies all showed symptoms ke those of beri-beri and ultimately died. Whether condition of partial deficiency in vitamin B can be ostulated amongst a population, such as the English, here the expression of the full deficiency is never en, seems a little doubtful, but in view of opinions hich have been expressed as to the possible insufficiency of vitamin B in the general diet of this country, is interesting to find that there is experimental idence for its existence in America.

A HEALTH SURVEY IN ILLINOIS.

THE Illinois State Department of Public Health s issued the story of its health activities over a riod of 50 years in a substantial book with the le "Rise and Fall of Disease in Illinois." In the eface the Governor of the State puts forward asons why the triumph of man over disease in inois ought to interest every person in the State; report itself, presented by Dr. Isaac Rawlings and colleagues, Dr. W. A. Evans, Dr. G. Koehler, and . B. K. Richardson should offer no difficulty to intelligent layman. Of more than local interest the relatively long list of "biologics" distributed e of charge, apparently from 1922 onwards; in dition to diphtheria antitoxin and small-pox ccine, the list includes diphtheria toxin and toxinitoxin, typhoid vaccine, and silver nitrate solution the prophylaxis of ophthalmia neonatorum. Atirabic vaccine is given free to poor people only. the use of toxin-antitoxin is ascribed the decline the death-rate from diphtheria from 22·2 per 0,000 in 1921 to 5·7 in 1926. Antityphoid vaccina, advocated since 1911, was largely used for phylaxis during the flooding of populated areas in thern Illinois in 1925. Field laboratories were ituted for use in outbreaks in out-of-the-way as; they have also been used for the diagnosis glanders and venereal disease, milk bacteriology, general laboratory work. Up to 1915 a monthly etin was published for a medical audience, since it has been popular in character; the Division Public Health Instruction possesses a motionure library containing some 80 films for uitous loan throughout the State. The report s with some matters of historical interest. Dr. lings does not admit that syphilis wiped out the nd builders who occupied the shores of Lake nigan before the Indians came there, and he makes pronouncement as to whether the Indians infected whites with syphilis or vice versa. He arraigns Indians for their failure to adopt systems of ge and refuse disposal, and for their liability heumatism and malaria. Sagacity is, however, n in their frequent removal from fouled sites h enabled them to avoid typhoid fever; nomadic -air life accounts for their relative escape from rculosis. Names of world-wide interest occur e story—e.g., Marquette, George Washington who of "cynanche," Alexis St. Martin, and Dr. mont, Abraham Lincoln, several members of e family died of "milk sickness." Readers ght up on Osler's Medicine will be prepared for mention of typho-malarial fever, a combination iseases not common in other countries. Dr. lings is embarking on rough seas when he suggests "typhoid fever may have evolved" and that "typhoid bacilli may be evolving back into the Salmonella group to produce food poisoning or even harmless bacilli right now and every day, and here." Certainly it is difficult to answer the questions—what becomes of all the typhoid carriers and why are they spreading so little typhoid? The same questions were asked 20 years ago in the Klinisches Jahrbuch. During Sir William Hamer's tenure of office at the London County Council a large reduction of typhoid fever occurred in the metropolis while the "carrier" question was purposely ignored. The report may be studied with profit for its sidelights on epidemiological theory and practice.

[4] L. Andrews: Philippine Jour. Sci., Sect. B. 7, 1912, p. 67.

WOMEN IN INDUSTRY.

THE place of women in modern industry has often been discussed, and the suggestion has been made that her place is in the home rather than in the factory; but appeals to the past, as have been made by such writers as Thomas, Havelock Ellis, and Sir J. Fraser, establish that the home of old not merely held the cradle but was the tribal workshop, and that industries originated in domestic activities started by women. Only in comparatively recent times did the inventive faculties of men bring machines into existence, and with them modern industrial methods which have carried much of the work of the woman from the home to the factory and placed it in the hands of the man. He, however, is no less a stranger there than is the woman, the factory is new to both; but the woman can justify her presence by pointing out that she has only followed her occupations. Interest in such considerations turns on the proof that throughout the ages woman has been accustomed to perform tasks calling for physical strength and endurance, tasks indeed heavier and more strenuous than those which they perform in our factories and workshops to-day. When the question is asked what effort she can sustain without injury and even with advantage, until recently no reply, based on accurate observations, could be given. There has, however, just been published [1] by the Industrial Fatigue Research Board the result of accurate and painstaking investigation into the physique of women in industry and their physical capacity. This report is consequent upon, and confirmatory of, an earlier inquiry[2] into the question of carrying. The metabolic cost of carrying loads seems to depend, in large part, on the disposition of the load; while any load which brings about any considerable departure from the erect posture, especially if this be associated with induced abnormality of gait, inevitably leads to a high physiological cost. The first part of the report presents data gathered from 4366 females, aged from 14 years upwards, some being college students, but most of them factory operatives. Such material has been collected before for males, in connexion with army recruiting, and deductions drawn from the new observations are found to fall in line with those based on male records. Mental activity is associated with physical development, the students being taller, heavier, and stronger than the operatives; moreover, they are stronger per unit of height and weight. Apparently mental activity enables the muscles to be used more effectively. This conclusion accords with that of Martin in America: "The most striking feature with regard to her strength is its co-relation with mental activity rather than with muscular development." The same underlying principle was found among the industrial group, since the members of an unemployed group were of equal weight but of less height, therefore smaller and stouter than their employed sisters, and they were on the whole less muscular as proved by the tests. These tests consisted in pulling against a recording spring,

[1] The Physique of Women in Industry. By E. P. Cathcart and Others. Industrial Fatigue Research Board. Report No. 44. H.M. Stationery Office. 1927.

[2] The Effects of Posture and Rest in Muscular Work. Report No. 35. Ibid.

gripping and crushing between both hands; in fact, the attributes of the unemployed group certainly suggested that they were less employable and so had either failed to obtain employment or had drifted out from it. The second part is concerned with determining the optimum load for carrying. As a result of careful experiments, described in detail, on the metabolic cost of human porterage by various methods, and its effect upon pulse and blood pressure, the conclusion is reached that loads for women should not exceed 40 per cent. of the body-weight for continuous carrying, and 50 per cent. for incidental or occasional carrying. Translated into average weights, these percentages are about 45 and 55 lb. respectively. Field investigation of practice in many widely different industries, including the chemical, tinplate, engineering, pottery, textile, brick-making, and paper trades, revealed that women tend to conform closely to the weights suggested above; they are generally self-protective in their choice of the size of load, and know to a nicety their own capacity. But young persons, particularly young lads, tend to tackle weights outside what is reasonable; this group of operatives needs supervision. Where heavy work is continuous the maintenance of a steady rhythm is of great assistance to the ease with which energy can be expended. Legislation regarding weight-carrying in different countries is given in an appendix, reference to which establishes the need which exists for such a scientific investigation of the whole subject as that which is now before us. It is an example of research carried out with forethought by a team of investigators whose observations and data have been treated with skilled statistical method. Little doubt, therefore, can be felt that the conclusions arrived at, even though tentatively put forward, approximate closely to certain facts.

THE MANAGEMENT OF LACTATION.

NOTHING is commoner in discussions on breast-feeding than reiteration of the statement that demand creates supply, and medical opinion in this country and America generally favours the view that 3 to 4-hourly feeding (five or six feeds a day with no night feeding) provides the amount of stimulation desirable to maintain the function of lactation. On the continent more frequent stimulation is recommended, Marfan and Variot in France, and Finkelstein in Germany, advocating 3-hourly or even 2½-hourly feeding. In a recent paper[1] Dr. Margaret Emslie describes an investigation which she carried out over a period of six years among breast-fed infants attending the welfare centres at Croydon, with the objects of determining (1) whether there is a lactatory "zone of efficiency" as in other physiological functions, with wider "thresholds" than those suggested by 2-hourly maximal or 4-hourly minimal stimulation; (2) whether the result of mammary activity, as shown by the nutrition of the child, varies with the amount of stimulation; and (3) whether, within the zone of effective action, there is a point of election which will provide the optimum for both mother and child, nervous as well as physical factors being taken into account. The cases dealt with included 103 infants who were fed four times a day and a small group of ten infants whose feeds were reduced to a total of three a day, usually for reasons connected with the mother's health and ability to continue nursing. In the early stages of the experiment (1920–21) the transition from 3 or 4-hourly feeding was carried out so gradually that the system of four feeds a day was only completed by the sixth month; later, when the well-being of both mother and child on the smaller number of nursings had proved itself, the process was speeded up, and the four-feeds-a-day system was often fully established by the sixth week, and sometimes sooner. The mother's understanding and coöperation were secured in every instance, and no single case occurred in which it was necessary t return to the old routine, either because the bab failed to gain the regular average of 6 to 8 oz. a wee which was taken as the standard of success, or becaus the mother was suffering from over-distension of th breasts or failure in the supply of milk. Tests carrie out occasionally showed no undue increase in th amount ingested at one nursing, and no abnormalit or change in percentage composition of the milk The average weight-curve of the 103 babies fed fou times a day began and ended (at 12 months) practi cally at the normal level, with a surplus of 1½ t 2 lb. above the normal curve between six and eigh months. Among the ten babies who were reduced t three feeds a day the age of the mothers varie between 24 and 43 years, and the position in famil of the baby between first and fourteenth; neithe of these factors appeared to have any direct influenc on the capacity to maintain lactation under greatl reduced stimulation. Dr. Emslie states that, whil the condition of the child is regarded as the measur of success in lactation, the comfort of the mother a the chief factor in that success is inadequately recog nised. She further maintains that it is precisely th good and conscientious mother, who realises he responsibilities to her husband and her other childre who is the most apt to resort to artificial feedin owing to the continuous pressure under which he daily duties are performed and the interruption c her work at inconvenient hours for the purpose c suckling her infant. The régime adopted by D Emslie avoided these drawbacks, the baby's mea times being fixed at 8 A.M., 12 noon, 4 P.M., and 8 P.M and this relief of both physical and nervous strai on the mother may have, she believes, a valuabl influence on the continuance of lactation witho impairing the health or progress of the child.

[1] The Function of Breast-feeding, Archives of Disease in Childhood, October, 1927.

THE CAREER OF FRANCIS HOME.

AT a meeting on Dec. 7th of the Historical Sectio of the Royal Society of Medicine, Fleet-Surgeon W. H Home read a paper on Francis Home, 1719–181 first professor of materia medica in the University o Edinburgh. As an Edinburgh student he was a early member of the Medical Society, and on th outbreak of the war of the Austrian Succession i 1742, he served in Flanders as medical officer to th 6th Inniskilling Dragoons. To prevent fever, Franc Home in 1748 ordered that dragoons "shall drin no water without it be first boiled, and a little brand or gin mixt with it." He was at Dettingen an Fontenoy, gained the approval of Sir John Pringl the Physician-General, and studied at Leïden in th intervals between campaigns. In 1750 he took th M.D. of Edinburgh, noting in his thesis that he ha not in Flanders seen a case of fever with a temperatu above 104° F.; this was the first clinical report temperature in fever by a British physician. Thoug Boerhaave, primarily a chemist, was dead, he w still the inspiration of Leïden, so probably muc attention was given to chemistry there. At an rate, Home began at once to write on this scienc first analysing the water of a spring at Dunse (1751 in 1756 he published lectures on "bleaching," advisin dilute sulphuric acid for "souring" cloth, whic greatly helped the linen industry for the next 5 years. The Government paid him £100 for h experiments, and his book was translated into Germa In this same year was published his "Principles Agriculture," said to be the first attempt to brin chemistry to the aid of agriculture. For this boo he was given a gold medal; a French translation w issued in Paris in 1761, with the approval of th French King, though we were at war with Franc and two German editions came out, the translat declaring Home was the first to show that plan got some of their food from the air. In 1758 appear his "Principia Medicinæ," long a standard text-boo and in the same year, as several children died measles in Edinburgh, he tried to lessen the risk

inoculation, as had been recently done for small-pox. He made the attempt in 12 cases, and noted that the inoculated disease had a shorter incubation and a milder course than the natural; thus he seems to have anticipated the recent work on measles prophylaxis. In 1765 he wrote on "croup," suggesting that laryngeal diphtheria was a different disease from the angina maligna that everyone knew. This error was not completely set aside until the time of Bretonneau (c. 1820). In 1765 Home was physician to the King, and in 1768 was appointed to the newly established chair of materia medica and took his turn in charge of the university clinical ward in the Royal Infirmary. In the library of the Royal Society of Medicine are MS. notes of his lectures on materia medica (1775) and clinical medicine (1776–77). In his writings he shows a good grasp of scientific method, but is much hampered for want of modern equipment. In his last book, "Clinical Experiments" (1781), he announces that diabetic urine can be fermented with yeast, and with J. Black, professor of chemistry, reports the amount of sugar in this urine. In 1798 he retired from his chair, being succeeded by his son, James Home. He died in 1813, and is buried at Earlston, in Berwickshire, where he had bought a small estate, Cowdenknowes.

THE DIAGNOSIS OF LOBAR PNEUMONIA IN CHILDREN.

LOBAR pneumonia, says Dr. E. Apert,[1] is sent to hospital with a wrong diagnosis more often than any other disease of childhood. In cases diagnosed as meningitis or acute appendicitis the true condition is often found to be pneumonia, whilst in those originally classed as pneumonia it proves to be pleurisy, acute tuberculosis, typhoid fever, or scarlet fever. For the avoidance of these mistakes it is well, he says, to bear in mind that in childhood the disease is mild, so that even patients whose temperature is high at the beginning of an attack may not seem ill to an unobservant mother. The rigor of onset is absent, but is sometimes replaced by a convulsion, and this is often accompanied by other possible signs of meningitis such as stiffness of the neck and slight spasm of the hamstrings. Otherwise, however, there is no evidence of meningitis; the attitude of the child is different, and the cerebro-spinal fluid is generally normal, though it occasionally shows a very slight increase of cells and albumin, whilst there are usually positive signs which indicate the correct diagnosis of pneumonia. Of these labial herpes is important. Often the papules are very small and transient, disappearing within 24 hours, but Dr. Apert considers that they are valuable evidence of pneumonia and must be carefully looked for. Pain in the abdomen, referred from right-sided pneumonia, may superficially resemble acute appendicitis, especially if it is accompanied by vomiting, as it may be in either condition; but careful palpation will almost invariably distinguish the two. By gentle and progressive palpation it is nearly always possible to press right down into the right iliac fossa in pneumonia without causing the mild pain, and only very rarely does pneumonia cause abdominal pain which truly resembles that of appendicitis. Dyspnœa is absent in children, except when consolidation is extensive, and the child lies on either side without discomfort. Below 12 years of age expectoration of sputum is uncommon, but in young children it can sometimes be produced by putting the finger down on the base of the tongue and causing a spasm of coughing with the ejection of sputum on to the back of the tongue, whence it can be removed with the finger. It is then sometimes rough and reddish, as in adults. The cough is less violent than in adults and less restrained than in pleurisy; its presence is very important, however, in directing attention to the chest. The physical signs are much less marked than in adults and are absent when consolidation is confined to a small patch; dullness is best elicited by very light percussion. Alteration in breath sounds can often only be detected by very careful auscultation, and changes are much more variable than in adults, the sounds being always harsher. It is important to listen in the axilla as sounds tend to be conducted there by the fissures in the lung. Tests of vocal resonance and fremitus are of very little value in children, and sometimes tubular breathing does not make its appearance until after the crisis. These facts, Dr. Apert points out, account for many of the difficulties of diagnosis, but errors can for the most part be avoided if they are recognised and if a methodical history is taken from the parents.

[1] Diagnostic de la pneumonie franche aiguë chez l'enfant. E. Apert. Monde Médical, Nov. 15th, p. 937.

PSYCHOLOGY OF MILITARY PRISONERS.

THE future of court-martial prisoners in disciplinary barracks in the United States, who return to duty on conclusion of sentence, has been made the subject of inquiry in the *Military Surgeon* for November by Lieut.-Colonel E. King, Medical Corps, U.S. Army. This future is found to be often unsatisfactory, the men proving themselves a risk to the service, being essentially undisciplinable. Colonel King believes that every such case should have a special medical examination to decide whether his discharge should not be applied for. In fact, of 165 such men in three years 30 per cent. appeared so unsatisfactory that their discharges were applied for, and 25 per cent. more seemed to merit similar treatment. In the suitable cases discharges would certainly save money, and Colonel King points out that the process would increase efficiency of units and lessen criticism of the service. He concludes that deserters, particularly those who desert early in their service, are military weaklings, and that all deserters should be sent before courts-martial, it being useless to keep in the army deserters of short service. Important psychological questions are opened up by such conclusions, and comparisons would be interesting between the American circumstances and those which prevail in the armies of other nations, consideration being had to the methods of recruitment.

IMPURITIES IN ETHER.

IT has long been known that when light acts on ether in the presence of oxygen peroxides are formed. At first it was believed that hydrogen peroxide was the only product, but later it was shown that during the oxidation a substance was formed which has an intensely pungent odour and exerts an irritating action on the skin and tongue. Although many chemists, including Berthelot, Dunstan, and Wieland, have worked on this subject, none has been able to determine beyond doubt the chemical composition of this organic peroxide. Wieland considers that it is dihydroxy-ethyl peroxide. Hitherto all attempts to obtain it in pure form have failed on account of the readiness with which it explodes. A paper read last week before the Society of Public Analysts by Mr. G. Middleton, B.Sc., and Mr. F. C. Hymas, B.Sc., two associates of the Institute of Chemistry attached to the staff of the British Drug Houses, Ltd., gave a useful review of the methods in general use for detecting peroxide in ether. They find, as others have found, that different samples of ether vary considerably in the readiness with which they undergo change in daylight in the presence of oxygen, and they express the view that entire freedom from both peroxide and aldehyde is essential in securing the stability of ether. In order to carry this into effect the official tests adopted by the different pharmacopœias for detecting peroxide in ether may need some revision; ten of these, including the British Pharmacopœia, adopt the potassium iodide test. The method of the present British Pharmacopœia is sensitive to one part of peroxide in two millions; Middleton and Hymas describe tests by which one part in 50 millions of ether can be detected and estimated. A colourless solution of ferrous thiocyanate is run into a bottle containing

the ether to be tested, the volumes being adjusted so that the vessel is filled. It is then stoppered and shaken, and the colour produced is observed by comparison with a standard solution of cobalt sulphate or by means of tintometer glasses. In this way a quantitative figure can be given in terms of parts per million, and the authors suggest an upper limit for the amount of peroxide to be permissible, which is very much less than that which can be detected by the present official pharmacopœial test. Routine testing over several years has shown that the ferrous thiocyanate test is easy to apply and gives consistent results. By its aid it should be possible readily to eliminate samples of ether which are unsuitable for narcosis.

AN INTERNATIONAL MEDICAL ASSOCIATION AND CENTRE.

IN July, 1926, a body called the Association Professionnelle Internationale des Médecins was formed by a group of 14 delegates of medical associations who chose as their secretary-general Dr. Fernand Décourt, President of the Union des Syndicats Médicaux de France, and selected Paris as their headquarters. On Sept. 29th of this year the delegates met again in Paris, this time in the fine new building at 10, Place d'Iéna, which has recently been opened as a Foyer Médical Franco-International. Twenty-two countries have now joined the Association, each of which has designated as its correspondent either the president or the secretary of the national association. The representatives present were Drs. Schneider (Germany), Stritzko (Austria), Schaeffer (Denmark), Fortuyn (Holland), Fedders (Lithuania), Schaeftgen (Luxemburg), Przyborowski (Poland), Tomesco (Roumania), Rystedt (Sweden), Vuilleumier (Switzerland), and Farkas (Jugoslavia and Czechoslovakia). Dr. Alfred Cox (England) was present in an unofficial capacity, the British Medical Association not having decided whether it will join the International Association. It is stated that several important professional questions have already been taken up by the Association and liaison has been established with the International Labour Office in Geneva. The Foyer Médical has been built as a commercial undertaking, the capital having been subscribed by investors. It contains comfortable reception rooms, restaurant, bar, tea-room, and reading and writing rooms. A tourist bureau provides information on hotels and professional information on clinics, hospitals, and specialists can be obtained. The aim of the promoters is to make it both a club and a centre of information for doctors of every nationality.

THE RETIREMENT OF PROF. MACALLUM.

THE retirement is announced of Dr. A. B. Macallum, Professor of Biochemistry in McGill University, Montreal, from the chair which he has filled with much distinction since his translation seven years ago from Toronto. Prof. Macallum began at Toronto, where he was lecturer in physiology, a full experimental course in physiology and biochemistry in 1886, and his methods were of a thorough sort not familiar at that time. The students were made to do the experiments themselves, which were at first of a simple kind, but the course was complete in three years, almost as complete as it is anywhere to-day—and nothing exactly like it obtained elsewhere, except at Harvard, where Prof. Bowditch had an experimental course from 1892 on. The students were gradually taught to appreciate the modern views of physical chemistry (derived from Van't Hoff's and Arrhenius's conceptions of physical chemistry) and colloidal chemistry as applied to biochemistry. In 1891 Macallum was appointed professor of physiology and biochemistry at Toronto, and the researches to which he gave particular attention were those on the origin of hæmoglobin from the chromatin of the hæmotoblasts, which led to the attempt to determine whether chromatin is an iron-holding compound. This was demonstrated by the results of research of three years, which showed that the chromatin of every cell is an iron-holding compound, and that hæmoglobin is, as it were, a degeneration product of chromatin. This explains the absence of a nucleus from the red blood corpuscles of mammals. There is a nucleus in the red blood corpuscles of the lower vertebrates, but the chromatin in it is in a degenerated form and because of this nucleus the red cells of these lower vertebrates cannot bring about cell division. In 1897 he was made F.R.S., and there followed researches into the absorption in the intestines of iron compounds into the inorganic composition of the blood plasma in vertebrates and invertebrates with closed circulation and into the inorganic composition of the cell, with the discovery of a method for detecting microchemically potassium, chlorine, phosphorus, calcium iron, and copper. In 1920 Macallum, now administrative chairman of the Canadian Research Council, was appointed professor of biochemistry at McGill, and his most recent researches have been into surface tension and its effects on determining the distribution of salts in living matter; the problems here are now being investigated.

All physiologists will join us in wishing Prof. Macallum an extended period to enjoy leisure, and—we may be certain—to continue the studies to which he has devoted his life. He is succeeded in the chair at McGill by Prof. J. B. Collip, well known in association with the discovery of insulin, which he made available for clinical purposes, and later for his parathyroid research.

WE have received a copy of the eighty-fourth annual issue of the Medical Directory, bringing the information obtained in 1927 fully up to date. The volume has increased in size by some 34 pages since last year, largely owing to the inclusion of 731 more names. This increase is conspicuous in three of the classified sections—namely, London (plus 114), Provinces (plus 521), and Wales (plus 46); whilst both Scotland and Ireland show distinct reduction of numbers—83 and 72 respectively. The diminution of 35 in the Services is but a continuance of the tendency observed since 1922, but the remarkable increase in the section of Practitioners Resident Abroad continues unabated, this year amounting to 240. The useful information at the front of the Directory is largely unchanged, trifling inaccuracies in the section of Titles Conferred having been made good, although there is still a curious survival under Appointments to the Royal Family. We greatly welcome the re-insertion of the list of Coroners in England and Wales, to which the editors have added an invitation to readers to supply corrections. The list of certified masseurs has increased by a column or two, and practitioners will welcome the Directory of Nursing Homes, which is a new feature of the 1928 edition, to be found on pages 413–14. The Directory, which remains of convenient size and format, may be had from Messrs. J. and A. Churchill for the usual price of 30*s*.

Prof. Robert Howden retired on Sept. 30th from the chair of anatomy in the University of Durham College of Medicine, and it is felt that many of his old students, colleagues, and friends will welcome an opportunity to express their gratitude for his work as anatomist, teacher, and administrator. He has served the medical school devotedly for 38 years, whilst the profession at large has profited by his admirable editing of "Gray's Anatomy." The proposed testimonial will take the form of a small memento and a cheque and it is asked that contributions should be sent to Sir Joseph Reed, at the College of Medicine, Newcastle-on-Tyne, by Dec. 31st.

Mr. Horace H. Rew has been appointed Secretary of the Conjoint Examining Board in place of Mr. F. G. Hallett, who resigned, as we have already stated, as from Dec. 5th.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

CCLIV.—THE TREATMENT OF PHLEBITIS.

PHLEBITIS occurs in two forms, (1) the plastic, and (2) the suppurative. In the plastic form of phlebitis inflammatory changes occur in the endothelium of the veins and as a result a clot or thrombus appears within the vein. Organisation of this clot by fibrous tissue may occur, the vein being transformed into a fibrous cord. In other cases the clot becomes softened and broken down and the circulation of blood through the vein is resumed. During this process a portion of the clot may become detached and pass to the lungs, resulting in pulmonary embolism. In the suppurative form the vein and the clot which it contains become invaded by pyogenic organisms; leucocytes enter the clot and cause it to break down into a purulent fluid.

Ætiology of Plastic Phlebitis.

Plastic phlebitis may be a result of (1) infective fevers, especially typhoid fever, (2) gout, (3) post-operative thrombo-phlebitis, (4) puerperal phlebitis or phlegmasia alba dolens, or (5) trauma, usually but not always, in cases when the veins are varicose.

Preventive Treatment of Plastic Phlebitis.

In the *infectious fevers*, especially typhoid fever, phlebitis of the lower limbs is not uncommon. The diet recommended in typhoid fever was at one time confined to milk and this substance contains a considerable amount of calcium salts (½ g. per litre: R. Hutchison). It is probable that in a long illness the coagulability of the blood will be increased on an exclusively milk diet and as a prophylactic measure in typhoid fever other liquids, such as beef-tea and lemon-water, should be given to avoid a diet solely composed of milk.

In *gout*, where the phlebitis is often multiple and sometimes symmetrical, the diet should be regulated and appropriate medical treatment, such as colchicine, opphan, and Contrexéville water should be prescribed.

In *post-operative thrombo-phlebitis* we have a condition which needs the urgent consideration of both physicians and surgeons. There is an alarming increase of pulmonary embolism and many deaths result from it after laparotomy. The work of J. G. Clark,[1] who has brought forward many convincing arguments to support his thesis, should be better known. He includes that post-operative thrombo-phlebitis results from trauma to the deep epigastric vein during manipulation of the abdominal wall at operations. He has shown that the clot spreads to the deep epigastric vein on the opposite side and to the iliac vein. The long interval, 8–15 days, which intervenes between the operation and the appearance of the thrombosis in the femoral and iliac veins suggests a slow process with gradual extension of the clot into the femoral vein from a focus some distance away. The absence of much fever and the fact that the pulse is slightly, if at all, raised in rate suggests a traumatic lesion of the vein rather than an infective one. In one case, after a patient had been operated upon and had developed a typical thrombo-phlebitis with œdema of the right leg, it became necessary to perform a second laparotomy. At this second operation, two months later, both the epigastric veins were found to be tense, hard, and as large as goose quills, while the right one was found to be decidedly varicose and to contain phleboliths. The block in the iliac vein may or may not be complete; if it is complete we get a swollen œdematous leg whilst if it is incomplete, pulmonary infarction may occur without swelling of the lower limb. It is clear from this that surgeons should use the utmost gentleness in manipulating the abdominal wall during operations. I am strongly against the modern habit of trying to remove an adherent appendix through the same abdominal wound that has been used for inspection or operative procedures in the upper abdomen. A great deal of stretching and pulling of the parietes occurs and it is far better to make a second incision over the appendix, if its removal is required after an operation on the upper abdomen. It is also clear that after abdominal operations the patients should be encouraged to move the legs as soon as possible so as to prevent stagnation of the circulation. W. A. Lister[2] has shown that the commonest source from which massive emboli arise is in the iliac veins and their larger tributaries, and he suggests as a preventive measure that movements of the abdominal wall should be encouraged after operation as soon as possible. He also suggests that massage to the lower limbs and breathing exercises should be undertaken as soon as possible after an operation on the abdomen. Another factor which may be of some importance in producing stasis in the femoral vein is the acute flexion at the groin which is produced by placing a bolster beneath the knees in order to prevent the patient slipping down in bed. The use of this support should be condemned.

After operation it is advisable to begin, on the third or fourth day, to give a mixture containing potassium citrate and ammonia three times a day as a prophylactic against clotting.

Prophylaxis against *puerperal phlebitis* is similar to that already described against venous clotting after operation. The influence of puerperal sepsis in this connexion is, however, very important.

Trauma is a cause of phlebitis usually, but not always in cases where the veins in the lower limbs are varicose.

Treatment of Varicose Veins.

The treatment of varicose veins may be summarised as follows:—

(*a*) *Support.*—The use of crêpe velpeau and india-rubber bandages and elastic stockings has been condemned on insufficient grounds. They certainly help to protect the veins from trauma and prevent their over-distension, and in many cases this is the only treatment necessary.

(*b*) *Spa Treatment.*—A great many cases of varicose veins have been greatly benefited by treatment at Bagnoles de l'Orne in France. In my experience the greatest benefit from the hot springs of the spa has been in cases where thrombosis has already taken place in the veins and more or less œdema of the lower limb has resulted.

(*c*) *Surgical.*—Removal of localised bunches of varicose veins may be undertaken by surgical excision. In many cases where the valves of the veins have become incompetent and there is great distension of the veins when the patient stands erect, Trendelenburg's operation of ligature of the saphenous vein in the groin has been used successfully.

(*d*) *Injection.*—In 1919 Sicard[3] proposed to inject fluids into the varicose veins with a view of producing a sclerosing thrombosis. Five c.cm. of a solution of 20 per cent. sodium salicylate are injected into the vein, which becomes hard and a firm clot is produced, which eventually leads to shrinking and disappearance of the varix. Apparently embolism does not occur as the result of this method of treatment.

(*e*) *Treatment when Phlebitis and Thrombosis has Occurred.*—Rest in bed is essential. The limb should be slightly elevated to favour return of the venous circulation. The inflamed vein may be gently painted with liniment of iodine and then covered with warm cotton-wool. If the whole leg is swollen it should be entirely encased in warm wool and covered with thin mackintosh. If the pain is severe, the skin over the painful area may be smeared with a cream made with green extract of belladonna with twice its weight

[1] Univ. of Penna. Med. Bull., 1902, xv., 154.

[2] THE LANCET, 1927, i., 111.

[3] Presse Médicale, June 2nd, 1926.

of glycerine. Massage and friction must not be employed for at least three weeks.

To prevent further clotting, citrate of potash and ammonia should be given, as in the following prescription :—

℞ Potass. citrat.		gr. xv.
Sp. ammon. aromat.		℥ xv.
Ammon. carb.		gr. iv.
Glycerini		℥ xx.
Aq. menth. pip.		ad ½ oz.

Sig. A tablespoonful in water every four hours.

After three weeks, if the leg remains swollen, gentle friction to the skin may be employed but deep massage is contraindicated.

Pulmonary Embolism.

The symptoms of pulmonary embolism appear in most cases with dramatic suddenness. Some 10 to 14 days after an operation or after parturition the patient is suddenly seized with violent pain in the chest. The breathing becomes very difficult and the distress of the patient is very great. If the clot is large enough to block the pulmonary artery or one of its larger branches, the patient may die in a few minutes. If, however, the colt is not so large, the patient recovers and within the next 24 hours a pleural rub may be heard and the patient will bring up a quantity of dark-coloured blood. Within two or three days a dull area may be found at the base of one of the lungs and tubular breathing and increased vocal resonance may be elicited over this area. Indications that pulmonary embolism may occur after an operation are slight. After the post-operative pyrexia has settled down to normal on the third or fourth day, the temperature, instead of remaining quite normal, may show slight signs of oscillation, rising to 99° or 100° F. without any obvious cause. There is usually no pain in the lower limbs, but just before the embolus takes place there may be a little œdema of one or both feet. The prevention of pulmonary embolism is that of thrombosis in the iliac veins. Once thrombosis has taken place the patient must be kept absolutely still and any respiratory exercises and movements of the abdomen and legs must be immediately stopped. Should a clot in a varicose vein show signs of ascending the leg the inflamed vein should be removed and the saphenous vein tied in the groin. It is clear, however, that operative measures on a clot in the iliac vein must be of doubtful value, though in some cases they have been undertaken. When the patient is seized by the crisis of pulmonary embolism, the violent spasm and acute pain are best relieved by a small dose of morphia. In many cases œdema of the lung supervenes and the chest becomes full of bubbling râles. When this occurs one-fiftieth of a grain of atropine should be injected. If there is much cyanosis, oxygen inhalations may be tried, and if the pulse becomes feeble strychnine, digitalis, and camphor should be injected. When once a pulmonary embolus has occurred it is obvious that another portion of clot may become detached and a second attack may follow, and I have seen cases where three or four small emboli have passed into the lungs during the course of two or three weeks and yet the patient has recovered. In view of this, it is essential that the patient should be kept absolutely quiet in bed for a period of four to six weeks until it may be hoped that the thrombosis in the iliac vein has become fully organised.

Ætiology of Suppurative Phlebitis.

The pyogenic organisms reach the veins from a focus of suppuration around them. The most common varieties are the result of (*a*) mastoid disease, resulting in septic phlebitis of the lateral sinus and internal jugular vein ; (*b*) facial carbuncle or boil resulting in infection of the angular vein and cavernous sinus ; (*c*) septic conditions in the abdomen, such as appendicitis, gastric ulcer, and tuberculous glands resulting in portal pylephlebitis ; (*d*) septic phlebitis of the iliac veins may follow certain cases of puerperal infection or uterine and bladder diseases.

Treatment of Suppurative Phlebitis.

(*a*) The infective focus must be drained or removed—e.g., the mastoid process must be drained or the appendix removed.

(*b*) Whenever possible a ligature must be placed on the vein between the affected area and the heart—e.g., the jugular vein must be ligatured at the root of the neck in cases of lateral sinus thrombosis.

(*c*) When this has been done, the inflamed vein should be thoroughly laid open, the septic clot removed, and the cavity thoroughly cleansed and drained whenever anatomical conditions allow of this being done.

After these essential surgical procedures have been carried out, the patient's strength must be maintained by careful feeding ; alcohol and other stimulants should be given when needed, while antistreptococcal serum may be given to combat the toxæmia.

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Public Health Services.

REPORTS OF MEDICAL OFFICERS OF HEALTH

THE following are some of the 1926 statistics of four English and one Scottish county :—

Name of district and estimated mid-year population.	Birth-rate.	Death-rates per 1000 of the population.					Death-rates per 1000 births.		
		All causes.	Tuberculosis.	Cancer.	Respiratory diseases with influenza.	Heart disease.	Diarrhœa, &c., under 2 years.	Infant mortality.	Maternal mortality
Lancasbire .. .. (1,788,500)	15·6	12·0	0·81	1·29	2·2	1·7	7·5	80	6
Durham .. .. (996,700)	22·9	11·5	1·11	0·99	2·2	1·1	11·0	84	5
Cheshire .. .. (654,500)	15·7	11·2	0·74	1·37	1·8	1·6	6·2	70	3
Somerset .. .. (399,500)	15·2	11·6	0·67	1·43	1·6	1·9	4·3	52	3
Stirling* .. .. (79,810)	22·8	10·9	0·64	1·07	1·9	1·2	6·6	70	4

* The figures refer to the county landward—i.e., excluding the burghs.

Lancashire.

Dr. J. J. Butterworth reports that the death-rate from cancer has steadily increased from 0·54 per 1000 in 1900 to 1·29 in 1926. During the last ten years the percentage of male deaths has gradually increased from 42·5 to 47·1. Congenital conditions accounted for 41 per cent. of the infant deaths and respiratory diseases for over 24 per cent. Operative treatment for tonsils and adenoids is not undertaken at the school clinics but only in hospitals by expert surgeons. During 1926 725 children received such operative treatment under the county scheme. The treatment of defects of vision is undertaken in the eye departments of hospitals or by part-time specialists in the county clinics. During the year 3343 children were treated under the county scheme. The dental staff consists of nine whole-time surgeons and one part-time, each assisted by a nurse or dental attendant. There are 18 clinics which serve about 33,000 children. Owing to the large number requiring treatment, the dentists concentrate on the younger groups of children

during the eruption of the first permanent teeth. They also treat expectant and nursing mothers and pre-school children.

The administrative county includes 19 boroughs, 33 urban, and 19 rural districts. Except for outlying parishes a constant plentiful and pure water-supply is available. In 99 of the 121 districts the local authorities carry out the scavenging. In 75 districts the contents of privy middens are still removed in the daytime. In 63 urban districts motor vehicles are used for the removal of refuse, but only in two of the rural districts. The county staff are making a survey of all the districts. At August, 1927, 70 districts had been covered. An exhaustive report is prepared on each area and sent to the local authority with request for observations as to the steps proposed to carry out the recommendations. Reinspections of the districts are made from time to time. Special inspections are made as required, in connexion with rivers pollution, milk-supply, outbreaks of infectious disease, &c. The time limits allowed by the various local authorities for the emission of black smoke are given. Seventeen authorities allow 10 minutes in the hour, four allow 12, and the urban district of Turton heads the list with 15. Such limits reduce smoke abatement to a farce. There is said to be a shortage of houses in some of the districts and "serious" or "considerable" overcrowding in four boroughs and four urban districts. The erection of new houses shows a marked increase compared with the previous year. Thus during 1926 8397 houses were erected and 3211 local authorities' houses were in course of erection at the end of the year, the comparable figures for 1925 being 6859 and 1692 respectively. Six joint regional planning committees have been established. The Manchester region includes areas in Cheshire, Derbyshire, and Yorkshire. The other five are for S.W. Lancashire, N.E. Lancashire, and in the neighbourhood of Lancaster, Preston, and Fylde respectively. The clean milk competitions promoted by the county council and the County Milk Recording Society do not as yet attract many competitors. There were 7 for No. 3 competition in 1926 and there are 15 for No. 4 competition in 1927. The public analyst, Mr. G. D. Elsdon, referring to the test introduced by his predecessor for determining the amount of dirt in milk, shows that there are far fewer samples containing dirt since this test was started. Thus in 1917 there were 453 dirty samples to 2457 clean. In 1922 there were 339 dirty to 2475 clean, and during 1926 not one sample of milk was returned as adulterated by dirt. Mr. Elsdon goes on to point out that much of this improvement is due to the fact that the once dirty milk has been cleaned by an efficient sieve or a centrifugal cleanser. He goes so far as to suggest that if these methods of cleaning dirty milk could be prohibited there would be an immediate improvement in the production of really clean milk. There were 111 notifications of small-pox with one death; and 159 notifications of encephalitis lethargica with 88 deaths. The county council is the maternity and child welfare authority for 75 of the 121 districts, and has a scheme in preparation to meet the puerperal fever regulations. There were 172 notifications of ophthalmia neonatorum; details of the results are incomplete but include one case of total blindness and five of impaired vision. In December a handy woman was successfully prosecuted for practising as a midwife.

The county council has established two antenatal centres which are supervised by obstetricians from Manchester and Liverpool respectively; and have made arrangements for the admission of parturient women to 13 maternity hospitals or homes in different parts of the county. The orthopædic scheme has been greatly extended by an increased number of local authorities joining in. The Biddulph Hospital is expected to be ready for patients before the end of 1927. When this is completed there will be three centres covering most of the county, each with its own hospital, country hospital, and out-patient centres with the whole of the work conducted by orthopædic surgeons and nurses.

Durham.

Dr. T. Eustace Hill reports that 5791 cases of small-pox were notified with 11 deaths. In December a conference of medical officers of health and of medical officers of hospitals was held in Durham and recommended a more stringent enforcement of the Vaccination Acts and a pooling arrangement for isolation and small-pox hospitals. At the end of the year there were 592 hospital beds available for small-pox. There are 31 urban and 14 rural districts in the administrative county, and the county council is maternity and child welfare authority for all except the boroughs of Hartlepool, Jarrow, and Stockton and Whickham U.D. Dr. Hill thinks the scheme to comply with the puerperal fever regulations will involve considerable expense and will be no easy matter to work in a county area owing to the need for promptitude. He considers that the local sanitary authorities should be responsible for the bacteriological examinations. The county council has already arranged for the admission of puerperal fever cases to the Princess Mary Maternity Hospital, Newcastle, and are considering the questions of providing the services of consultants and special nursing assistance. There were 52 notifications of encephalitis lethargica and 43 deaths. During the last ten years, while the English death-rate from cancer has increased from 1·21 to 1·36, the county of Durham rate has increased from 0·73 to 0·99. Dr. Hill knows of no circumstances in the county, such as occupation, &c., which would explain the low cancer mortality in the county. He thinks it is probably due to a larger proportion of the population being at the lower age-periods.

Special antenatal sessions were held at 21 centres and at the County Maternity Home, Bishop Auckland, and the Richard Murray Hospital, Blackhill. The expectant mothers who attended during the year numbered 2425 (total births, 22,802). The work of the centres was considerably interfered with by their being used for the distribution of milk during the coal stoppage. There was no evidence of any starvation among those attending the centres; in fact, it was noticed that many babies were in better condition because they were more regularly fed and their mothers had more leisure to take them out and give them fresh air. The voluntary workers worked very hard during this emergency period, and an enormous amount of work was thrown on the health visitors by the distribution of dried milk and arrangements for free meals. During most of the period from May to the end of the year 30,000 expectant and nursing mothers and children under 3 years were in receipt of dried milk and meals free or at a reduced price. The cost for the year ended March 31st, 1927, of this provision was £95,945. Children between 3 and 5 years were provided with breakfasts and dinners at the 309 canteens organised by the Education Committee. Expectant mothers in the last three months of pregnancy had the option of milk or meals, but only 1 per cent. chose the meals because they could not leave their homes twice a day and sacrifice two hours daily for the purpose. Considering that all the cooking arrangements, &c., for the canteens had to provide for the daily feeding of over 100,000 individuals, the efficiency of the scheme was marvellous. Canteen committees were formed, boilers bought or hired, and fires were arranged either under penthouse roofs or in the open. Men, who had been army cooks, gave valuable service. Incidentally, many parents received useful lessons on the provision of good plain economical dinners for their children, and mothers were brought in touch with the work of the centres who had never been there before.

The number of confinement cases admitted to the five hospitals included in the county scheme numbered 790. The hospital beds available for tuberculosis cases, numbering 446, are insufficient, and there is a

waiting-list of about 200. An excellent new, specially built, venereal diseases centre was opened in the Stockton Hospital grounds during the year. Although 3924 new houses were built by the local authorities during the year and 3354 others are in course of erection, the shortage of houses and overcrowding are deplorable. Dr. Hill also laments the extremely unsatisfactory position of the rivers pollution question. To conclude on a bright note, however, the general death-rate and the infant mortality-rate were the lowest on record.

Cheshire.

Dr. Meredith Young reports that all the county schemes for the betterment of the public health have grown in size and complexity. The deaths from encephalitis lethargica in the county in 1926 were 31, in 1925 25, and in 1924 32. Dr. Jean R. Shaw, the maternity and child welfare officer, says the County Nursing Association is extending its activities and each year there are fewer areas without the services of a trained midwife. This association is successful in securing midwives with a high standard of efficiency. There are six county midwives working in districts not touched by the Association. Each of these receives a grant of £60 a year until she has a practice sufficient to support her. Altogether there are 259 practising midwives, 215 trained and 44 untrained. Nine are unable to take the temperature or pulse. One midwife, living outside the county, engaged to attend a woman, who had a history of ill-health, only summoned a doctor when the patient was moribund after labour. Her name was removed from the midwives' roll. Monthly lectures have been held for the midwives at seven centres and were well attended. The county council also give grants to allow two of the midwives, who have been practising in the county for five years, to attend a "refresher" course at Plaistow every year. About 59 per cent. of the mothers were able to breast-feed their babies entirely at the end of six months. This is the lowest percentage of breast-feeding since infant welfare work started. Owing to the shortage of houses, many young couples are unable to start housekeeping in their own homes, and in consequence have needed the help of maternity homes. Up to the present the antenatal centres conducted by local doctors have not proved a success, but an antenatal centre conducted at Stalybridge by a specialist from Manchester was much more popular. At Congleton the local panel committee objected to the establishment of an antenatal centre under the supervision of an obstetric specialist living in the neighbourhood. Dr. Young says the whole question of rivers pollution needs serious consideration and that his staff ought to be strengthened by the inclusion of assistants with engineering and chemical knowledge. The grosser pollutions are connected with trade wastes, and in the case of Cheshire the most serious ones are generated at collieries in Staffordshire, which are situated in one of the Cheshire water-shed areas. In most of the districts housing is going forward at a fairly rapid rate, but as the population is growing it will be a good many years before the shortage is overcome.

Somerset.

Dr. W. G. Savage says there were 37 cases of encephalitis lethargica and 25 deaths. The county council authorise eight cases at a time of non-pulmonary tuberculosis being maintained at the Treloar Hospital, and other cases are sent to the Bath Orthopædic Hospital. The tuberculosis death-rate was the lowest on record and is only two-thirds of what it was at the beginning of the century, the main decline being in pulmonary tuberculosis. Unused buildings at Quantock Sanatorium were again used as a summer camp, with much benefit to 40 girls and 40 boys. The tuberculosis officer, Dr. L. J. Short, shows that the dispensaries are well used for consulting purposes. Of 1683 new cases, 354 had no bacilli in their sputum. Of those with bacilli in their sputum 15 were at stage 1, 88 at stage 2, and 52 at stage 3. Of the remaining cases, 96 were non-pulmonary tuberculosis, 929 were no tuberculous, and 149 were still under observation a the end of the year. During the years 1912–26 7185 patients came under treatment, of whor 32 per cent. are said to be cured, 23 per cent. to b at work, 9 per cent. to be not working, 25 per cen to be dead, and 11 per cent. to have been los sight of. Of the patients admitted to Quantoc Sanatorium during the year 91·6 per cent. were unf for any work and 8·4 per cent. were fit for light worl Of the patients discharged, 54·4 per cent. were fit fo full work, 24·4 per cent. for light work, and 21 pe cent. were unfit for work. The average duration stay since the sanatorium was opened in June, 192 has been 140 days. Antenatal work by the midwive is growing slowly. Antenatal cards are supplied t them and examinations of urine, &c., are done fo them in the county laboratory free of charg Leaflets to expectant mothers are also supplie A special effort began in May, 1926, to detect a cases of rickets at an early stage and bring the under treatment. With this object the visiting infants has been extended to the end of the secon year. At the end of April, 1927, light treatment w in operation at three of the centres. The 673 cas of crippling dealt with by the county orthopæd scheme included 39 cases of tuberculosis, 90 infantile paralysis, 83 of rickets, and 67 of knoc knees (mostly old rickets). Some of the other cas dealt with were spastic paraplegia 27, congenit dislocation of the hip 25, club foot 37, claw foot 2 scoliosis 21, torticollis 10, and postural deformitie 147. There is plenty of water in the county as a whol but there is much failure to distribute it proper among the many small areas responsible for providir their own water-supply. In some urban and ma rural parishes the supply is very deficient. In oth cases there is much waste of money by the duplicati of reservoirs, pipes, &c. The number of new hous erected was 2190, compared with 1386 in 1925 a 973 in 1924. It is still impossible, however, to clo many houses which are unfit for habitation a cannot reasonably be made fit. These numb about 2000. Dr. Savage reports that meat inspecti is becoming more efficient, and he expects mu improvement in clean milk production from t Milk and Dairies Order of 1926. He has much say, however, with regard to the inefficiency of t Tuberculosis Order, 1925, from the point of view the public health. As it is being worked it is doi little more than to eliminate advanced cases tuberculosis when they are ready for the knacke and when they have done their work in infecti the rest of the herd. Early cases of udder tuberc losis are not being notified and are only being detect by the following up of tuberculous milk sampl A whole-time veterinary surgeon should be appoint by the county council to carry out special inspecti and to coördinate the work of the part-time veterina inspectors. Such officer should be on the coun health staff to "enable that preventive outlook to given to the working of the Tuberculosis Orc which is now so conspicuously lacking."

Stirling.

Dr. T. Adam gives full particulars of housi conditions of the three districts—central (populati 27,500), eastern (population 40,692), and weste (population 11,618)—into which the county landwa (i.e., excluding the burghs) is divided. Each distr is administered by a district committee. A surv was made in 1919 and an estimate of houses need made, based on the closing of houses unfit for habi tion and the raising of the general housing standa With the latter object it was proposed to reduce t number of one-apartment and two-apartment hous The first estimate was for over 4500 houses for t three districts. After consideration this estim was reduced to 1140 and schemes were prepared a begun. Before the work was half completed t central government stopped it. In 1919 the build of houses by private enterprise had dwindled

nothing. Since that date there has been a recovery, and the net result for the period 1919 to 1926 is 497 local authority houses and 548 private enterprise houses.

Dr. Adam points out that the inherent difficulties of building houses in bulk are always accentuated when the responsibility is shared by central and local authorities. The aim of the district committees is to close unfit houses with as little hardship as possible, and with this in view the medical officer of health reports such houses when they are vacant. There is, however, such a run on the low-class houses with the cheap rents that they become reoccupied before the local authority has time to close them, and in some cases these cheap houses attract to the district undesirable tenants from outside. Dr. Adam suggests that local authorities be empowered to make provisional closing orders which would become operative on the termination of a tenancy or at the discretion of the local authorities. He also suggests that the grants for the reconstruction of unfit houses made available by the Housing (Rural Workers) Act should be extended to urban housing. Owing to the coal stoppage there was a great increase in the expenditure on milk for necessitous mothers and children. The infant mortality-rate for Stirlingshire was the lowest on record. In the quinquennium 1891–95 the death-rate from all forms of tuberculosis was 2·07. In 1921–25 it was 0·86, and in 1926 it was the lowest on record, 0·64. It is hoped to establish light treatment at the Bannockburn and Camelon Hospitals to save sending patients into Edinburgh and Glasgow. On his comment on the proposed new county dairy by-laws, Dr. Adam thinks the model by-law requiring clean overalls for milkers, &c., should be retained and that it is a mistake in view of tuberculosis risks to lower the cubic space standard from 600 to 500 cubic feet in the case of new byres, and from 450 to 400 cubic feet in the case of existing byres. He further thinks that the Board of Health should give a definite lead with regard to cubic capacity, ventilation, and lighting of byres, seeing that this is not a local question.

The river Bonny has been so polluted of late years that fish could not live in it. Owing to the fact that the local distillery had ceased work and that the Cadder Colliery had been idle for seven weeks, the water improved so much that trout-fishing was resumed. In the three districts among 8092 cows 1 tuberculous udders and 10 cows emaciated by tuberculosis were found by veterinary inspection during the year. The meteorological records show that the rainfall at Falkirk was 38¼ inches, which was 5½ inches more than in the previous year and 2 inches above the average. The falls recorded at two of the reservoirs were 66·6 and 61·7 inches respectively.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED DEC. 3RD, 1927.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 0 (last week 233); scarlet fever, 2148; diphtheria, 1,[illegible]; enteric fever, 89; pneumonia, 1301; puerperal fever, 38; puerperal pyrexia, 86; cerebro-spinal fever, 5; acute poliomyelitis, 12; acute polioencephalitis, 2; encephalitis lethargica, 34; dysentery, 19; ophthalmia neonatorum, 106. There was no case of cholera, plague, or typhus fever notified during the week.

Small-pox was notified from 13 counties, and the number of notifications, 366, is higher than for any week since June 2nd. Allocated to counties, the numbers were as follow: Derby 25, Durham 74, Gloucester 6, Lancaster 36, London 18, Northumberland 22, Nottingham 15, Warwick 3, and the North Riding 4, West Riding 50, Brecknock 8, Glamorgan 36, Monmouth 69. Of the 89 cases of enteric fever only 8 were notified from the county of Hertford.

Deaths.—In the aggregate of great towns, including London, there was no death from small-pox (it is now three months since any death was attributed to this disease), 5 (1) from enteric fever, 48 (13) from measles, 7 (3) from scarlet fever, 12 (2) from whooping-cough, 43 (6) from diphtheria, 45 (13) from diarrhœa and enteritis under two years, and 63 (13) from influenza. The figures in parentheses are those for London itself. The deaths from enteric fever outside London occurred one each in Norwich, Bolton, Leeds, and Cardiff. The number of stillbirths registered during the week was 260 in the great towns, including 43 in London.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Lt. (D) H. J. Luck to be Surg. Lt.-Comdr. (D).
Surg. Lt.-Comdr. J. D. Murphy to be Surg. Comdr.

ROYAL ARMY MEDICAL CORPS.

Lt.-Col. A. C. Adderley is placed on the half-pay list on account of ill-health.
Maj. H. C. Sidgwick to be Lt.-Col.
Capt. G. D. Gripper to be Maj. (Prov.).

ARMY RESERVE OF OFFICERS.

Col. H. O. B. Browne-Mason, late R.A.M.C., having attained the age limit of liability to recall, ceases to belong to the Res. of Off.

TERRITORIAL ARMY RESERVE OF OFFICERS.

Lt. P. M. Speed, from the Active List, to be Lt.

ROYAL AIR FORCE.

Flight Lt. C. P. Barber is promoted to the rank of Squadron Leader.

INDIAN MEDICAL SERVICE.

Temp. Lt. F. P. Lisboa-Pinto relinquishes his temp. commn.

COLONIAL MEDICAL SERVICES.

Transfers and Promotions: Maj. G. J. Keane, D.S.O., Deputy Director of Medical Services, to be Director of Medical and Sanitary Services, Uganda; Dr. P. P. Martyn, Assistant Medical Officer, British Honduras, to be Medical Officer, Nyasaland; Dr. L. U. Leembruggen and Dr. S. Subramaniam, Medical Officers, Grade I., Ceylon, to be Provincial Surgeons, Ceylon.—*Appointments:* Dr. H. M. Russell, Assistant Pathologist, Medical Department, Gold Coast; Dr. G. Shearer, Medical Officer, West African Medical Staff; Dr. L. R. Wynter, Medical Officer, Leeward Islands; Dr. R. J. Snodgrass, Medical Officer, Fiji; Dr. W. L. Blakemore, Medical Officer, Straits Settlements; Dr. A. L. Kiow, Resident Surgeon, Colonial Hospital, St. Vincent, Windward Islands; Dr. W. B. R. Jones, Assistant Colonial Surgeon, Falkland Islands; Capt. L. A. Celestin, Second Resident Surgeon, Civil Hospital, Port Louis, Mauritius; Dr. A. F. H. Stewart, Medical Officer, District 2 (North) St. Vincent, Windward Islands; Dr. J. W. Murdoch, Second Assistant Medical Superintendent, Central Mental Hospital, Federated Malay States; Dr. M. C. Cairney, Lady Medical Officer, Federated Malay States; and Dr. F. Widlake, Medical Officer, Gilbert and Ellice Islands Colony, Western Pacific.

DEATHS IN THE SERVICES.

Lieut.-Colonel R. B. B. Foster, I.M.S., who died in Dublin of pneumonia on Dec. 5th while home on leave, was the second son of the late Rev. Robert Foster, formerly Chaplain, Royal Hibernian Military School. He was educated at Trinity College, Dublin, where he obtained a Junior and School Exhibition, graduating M.B. in 1900. He entered the Indian Medical Service in the following year, was promoted Captain in 1904, Major in 1912, and Lieut.-Colonel in 1920. He served in the campaign in Somaliland, 1903–04 (medal and clasp); the late war, 1914–18, in Egypt and Mesopotamia (1914–15 Star, General Service and Victory Medals); and on the North-West Frontier of India, Afghanistan, 1919 (medal and clasp). He was only recently placed on the selected list of Lieut.-Colonels and was to have taken up the appointment of Civil Surgeon at Ootacamund on his return from leave. Amongst other appointments he had held was that of professor of hygiene and bacteriology in the Medical College, Madras. He married in 1921 Millicent Wyndham, only daughter of the late Henry Wyndham Ball, of Dublin, who survives him.

Special Articles.

CHILD DELINQUENCY.

BY E. A. HAMILTON-PEARSON, M.B., CH. B. ABERD.,

PHYSICIAN, TAVISTOCK CLINIC FOR FUNCTIONAL NERVE DISEASE, CHILDREN'S DEPARTMENT; CLINICAL PSYCHOLOGIST, WEST END HOSPITAL FOR NERVE DISEASE.

THE investigation of the causes of juvenile delinquency on which this article is based has been in progress for seven years. It was undertaken in no narrow psychological spirit, but with the object of exploring all factors, physical as well as psychological and environmental, which might conduce to delinquency; also to ascertain the efficacy of treatment, undertaken on the basis of the understanding of the underlying causal factors and directed to their elimination. The results achieved have been exceedingly good, especially in cases considered incorrigible because they did not yield to ordinary disciplinary methods. It is gratifying, and a testimony to the value of the results, that official centres, unofficially at present, are making increasing use of the work.

The material for the present article was derived from the written statement submitted in support of my evidence given before a Home Office committee set up to investigate the treatment of the young offender. For the purposes of that evidence a rough analysis of an unselected hundred of my own cases was undertaken. Sixty of the cases were delinquencies ranging in seriousness from suspected homicide to cases of uncurbed temper, the remaining 40 were ordinary neuroses.

Neurosis in childhood is treated understandingly because of its possible serious after-effects. Delinquency, although it is more prevalent and frequently has more serious results, is treated arbitrarily and with no attempt at understanding. Yet both states are equally non-adaptations to environmental requirements, but with different manifestations, and they frequently result from identical environments. An environment characterised by harsh unbending discipline may produce a psychological rabbit or a rebel against any form of authority, the difference in reaction being due to the difference in the type of the affected child. In one type the conflict resulting from non-adaptation remains unsolved, a collecting point for irresolutions, a neurosis. In another type the conflict is resolved in action which is at variance with accepted standards, a delinquency.

The delinquents fall into three main categories, the first two of which are differentiated on a basis of mental age, the third because of the existence of a definite physical causative factor: (1) mentally retarded delinquents; (2) delinquents with average or superior intelligence; (3) delinquents because of physical abnormality or disease.

The mental age must be estimated in every case as a routine of examination. Apart from the information gained from the tests, a knowledge of mental age is essential for the correct appreciation of conduct in retarded children. A child of 14 with a mental age of 11 is, for all practical purposes, in its thought processes and reactions to life, 11 years old. The actions of such a child can be correctly judged only from the standpoint of what could be considered normal for an average child of 11.

Mentally Retarded Delinquents.

Group 1.—Thirty-seven of the 60 cases belong to this group, a fairly normal proportion in my experience of the total of cases seen. Certain motives tend to show themselves so frequently as to become almost specific for the group. The most frequent are:—

(*a*) Realisation of inferiority, to which delinquency is a compensatory impulse.

CASE 1.—A boy, aged 16, physically healthy, mental age 12. Complaint: incorrigible stealing, beginning shortly after he commenced work. Investigation showed that he was ambitious to be on terms of equality and friendship with children of his own year-age and realised his inferiority to them, that an unusual popularity with his compeers corresponded with his thefts and that practically every penny was spent on other children. He learned that equality could be gained so long as he had money. The association of money with the satisfaction of his most intense desire led, in the absence of any counteracting inhibition, to his stealing without concealment.

This class of delinquency is the satisfaction of a psychological need, and the only means of preventing it from becoming habitual is to satisfy the need in a more legitimate way. Treatment must be based on the aptitude the majority of these children show for some form of manual training. The power to produce an objective thing, created by themselves, gives confidence and a feeling of capacity which, as a rule, overcome the previous method of satisfying the dominant desire.

(*b*) The continuance of a childish reaction to the environment beyond the age at which it could be condoned and not appear abnormal.

CASE 2.—A boy, aged 7¾, physically healthy, mental age 6. Complaint: incorrigible theft and ungovernable temper. School reported him as backward, docile, and honest. Investigation revealed his strong attachment to the father and intense jealousy of the mother. Any open act of affection between the parents drove the child into a frenzy of rage which culminated in an assault on the mother or theft from her. The boy never stole at any other time or from any other person. Such a reaction to jealousy is only understandable in the light of the child's mental age; it would not be abnormal at 6, but a child of 8, with its greater experience, should have a wider conception of its place in the scheme of family relationships.

It is necessary to study such children carefully and to adjust their environmental conditions in whatever way proves desirable for the production of a normal reaction.

(*c*) Openly stealing an object, because of desire for the object, without reference either to owner or consequences. Part of the educative experience of childhood is the formation of acquired inhibitions, abstract ideas of right and wrong conduct, based on experience and of sufficient power to inhibit an action contrary to the acquired and accepted standard. These inhibitions are usually approximately commensurate with mental age, and depend largely on the form of discipline the child has been exposed to.

CASE 3.—A boy, aged 8, physically overgrown, mental age of 6. Complaint: destructiveness and aimless impulsive stealing. Investigation showed a family history of insanity, a pronouncedly hysterical mother, and no evidence of any exercise of parental control. Open stealing of whatever his fancy dictated, from a bundle of firewood to a bicycle, showed a lack of acquired inhibitions, infantile for a mental age of 6, an exaggeration owing something to basic emotional instability, but mainly due to lack of home discipline.

In such cases the first essential is removal to an atmosphere of stable understanding discipline away from the home environment. After puberty sex constitutes a definite danger to patients in this category with their underdeveloped powers of control. The girls tend to a careless promiscuity, the males provide the greatest number of assailants in cases of criminal assault.

Delinquents with Average or Superior Intelligence.

Group 2.—Twenty-three of the 60 cases belong to this group. In the majority a history of neurosis in one or both parents was elicited. Even mild degrees of parental neurosis may act as a causative factor in child neurosis and delinquency by causing unfavourable environmental conditions; they always call for serious consideration.

Ten of the 23 cases fall between the ages of 13 and 15. Puberty does not, as a rule, initiate abnormal states. The almost normal unbalance of this period of change acts chiefly by emphasising already existing abnormal traits, throwing them into fuller relief. It was possible, in most of these cases, to demonstrate the existence of milder degrees of abnormality some years before puberty.

In this group every case must be investigated separately and on its own merits. Underlying mechanisms have practically nothing in common; they are as various as the children and their environments. Quotation of the salient points of a few cases will amply demonstrate both the variability of mechanism and the fact that a permanent satisfactory behaviouristic result could be obtained only on the basis of an understanding of the mechanism activating the delinquency.

(*a*) Premeditated delinquency—i.e., delinquency, e.g., theft, undertaken with a full knowledge of the wrongfulness of the action and of the punishment involved by detection. A penalty incurred in this way must be exacted; at the same time the psychological factors involved in the execution of the delinquency should be taken into consideration. Many cases show the existence in the delinquent of a capacity for directed observation, an ability to plan on a basis of observed fact, and the initiative and confidence necessary to carry out a plan in the face of known risks—useful qualities to possess if life offers a field for their legitimate use, dangerous if that legitimate outlet does not exist. Sense of power and the excitement gained in outwitting an opponent are the primary activating desires; as a rule the value of the object to be stolen becomes primary at a much later stage.

CASE 4.—A girl, aged 17, physically healthy, intelligence above average. Complaint: a series of cunning thefts of trivial articles. Investigation revealed no previous delinquency. Circumstances drove her to a form of domestic service, the routine monotony of which gave no occupation for an active mind. At first the planning of thefts requiring ingenuity and daring gave exercise for her natural abilities; later, reality could be imparted to the planning only at the expense of the risk of executing the plan. She fully realised the dangers of her position, and that, in the inevitable next step, the value of the object must be a necessary ingredient in any plan to make it worth while as a stimulus. She eagerly welcomed the opportunity of farm training preparatory for emigration, proved an eager pupil, and has had no further trouble.

(*b*) Persistent delinquency, the result of a wrong attitude to certain environmental circumstances.

CASE 5.—A boy, aged 19½, physically healthy, intelligence average. Complaint: recurrent incorrigible delinquency, persisting through nine years, three of which had been spent in a reformatory. Investigation, corroborated by the parents, showed that he was an unwanted child and early resented the lack of affection and indifferent treatment he met with at their hands. The boy could not decide to cut free from people who had practically disowned him, but brooded over the unfairness of his position, deprived of an affection to which he felt he had a right. The boy's general attitude to the parents was, briefly, "if they won't own me then they shall regret having me." Unusual difficulty in his life created an emotional state, the culmination of which was some completely stupid delinquent action dictated by his attitude towards his parents—a boomerang form of revenge.

In such cases punishment will only tend to crystallise the wrong attitude; understanding of the reason for non-adaptation opens a way to complete readjustment.

(*c*) Outbursts of ungovernable temper with attempted assaults upon the parents, the result of inability to accept and adapt to the limitations of girlhood when these become apparent.

CASE 6.—A girl, aged 8, physically healthy, mentally above average. The parents feared that a recently developed ungovernable temper was early insanity. The father was fond of a boy's preparatory school. Investigation showed that she had lived, dressed, and thought as a boy, had never regarded herself as other than a boy, and never had a girl friend. Her age made a more conventional life advisable, and this constituted a sudden call for complete change in the mode of thought about herself and her outlook on life which the child was unable to make. She despised girls with small boy's lordliness. The unfairness of making her a girl when she wanted to be a boy, and her inability to accept or understand the situation, kept the child in a seething state of resentment. Every time the conflict was intensified by experience of the limitations imposed by the conditions, relief came in a fit of passionate anger against the parents who for the first time had failed to make her life smooth for her.

Knowledge of the cause made it possible to help the child to solve her conflict completely and to adjust her education in such a way as to enable her to achieve a healthy attitude towards her own sex.

(*d*) Impulsive stealing of one particular form of article.

CASE 7.—A boy, aged 14, physically healthy but overgrown, intelligence average. Complaint: recurrent theft, persisting in spite of extremely severe corrective measures. Investigation showed that the stealing was of one type of article of female attire, that the garment was a necessary property for the act of masturbation, and that theft only occurred in the presence of strong masturbatory desire. It was a compulsive act as much beyond conscious control as the average spasmodic tic.

First to understand the relationship between the two acts and secondly to help the boy to masturbational mastery was the only way to ensure the cessation of the associated compulsive act of theft.

Delinquency because of Physical Abnormality or Disease.

Group 3.—Mentally these cases belong to the two previous groups; they are considered separately because in each a physical factor is present which conduces to delinquency. Active treatment of the abnormal physical condition is an essential preliminary to the correction of any psychological non-adaptation.

(*e*) Deficient secretion of an endocrine gland producing a condition conducive to delinquency.

CASE 8.—A boy, aged 9, of average mental age, reported to be physically healthy. Complaint: incorrigible theft, mainly of sweetstuffs or of money to buy them. Physical examination revealeda tendency to girdle obesity and retarded genital development. The first recorded theft was of half a tin of golden syrup and the large remains of an iced cake, consumed before breakfast without any ill-effect. Evidence of abnormal sugar hunger and an abnormal sugar tolerance which, with the other physical signs, pointed to posterior pituitary deficiency. A blood-sugar curve corroborated the case evidence of excessive tolerance. The physical condition improved rapidly under treatment with pituitary extract, and with the physical improvement the stealing ceased.

(*f*) Pituitary involvement, a sequela of encephalitis lethargica.

CASE 9.—A boy, aged 14, of average intelligence; encephalitis five years previously had left him somewhat emotionally unstable. Charged with having on several occasions committed unprovoked assaults. Examination showed him to be a case of dystrophia adiposogenitalis. Very sensitive about his appearance, a phobia was gradually forming in his mind that he was an object of derision to everyone who saw him. Anyone smiling as they passed him in the street was quite liable to be assaulted. Only amelioration of the physical state could make it possible to tackle the phobia. Treatment was begun, but after a short period he refused to attend and his case had to be abandoned.

(*g*) Recurrent bouts of violent temper and intractibility, a result of unsuspected physical abnormality.

CASE 10.—A boy, aged 18, intelligence average. Suspected of being mentally deficient because of periodic outbursts of ungovernable temper. Between bouts he behaved normally and worked well. Investigation showed that the bouts of temper coincided with periods of intense headache, bursting in character and localised to the centre of the cranial cavity. X ray photographs showed the sella turcica to be completely enclosed by a thin bone plate. In these conditions periodic fluctuation in gland size would account for the headache. Control of the outbursts of temper could be gained only through alleviation of the physical symptoms.

I hope enough has been said to make clear the advisability of, and the necessity for, an adequate examination of delinquent children by trained medical psychologists. In an article of this length it is impossible to do more than indicate a few of the facts which show the existence of such a necessity. The work constitutes one of the branches of preventive medicine, for which facilities can be gained only as a result of the pressure of an informed medical opinion.

UNITED STATES OF AMERICA.

(FROM AN OCCASIONAL CORRESPONDENT.)

Youthful Marriage Problem.

MUCH publicity has been given here to the marriage of the school-girl daughter of a successful publisher and a college student two years her senior. It is called "companionate marriage." This, we are assured, is not "trial marriage," for the expectation of success is not less than in any other marriage. It is not at all easy to find out in what ways this new marriage differs from the old. The most important would seem to be the youth and dependence of the bride and groom. The bride is to return to school after her honeymoon. Judge Ben Lindsey, who invented companionate marriage—the papers call it "pal marriage"—has had a large experience as judge of the juvenile court of Denver, which has convinced him that very many boys and girls at high school and college are at present enjoying the privileges of marriage without avowing their relations. This has two evil results: first, the encouragement of hypocrisy; and, second, the absence of responsibility in case of pregnancy. Early marriage with the consent of the parents is intended to avert these evils. For economic or other reasons it is assumed that no children will be desired for some years. This arouses interest in both medical and legal circles. Is birth control of any kind desirable in the early years of marriage? Does it tend to subsequent sterility? If desirable, what method of contraception should be recommended? In the meantime a 50-year old statute of the State of California is being tested for the first time; a carpenter is awaiting a jury trial for selling a pamphlet containing information on birth control. The American Civil Liberties Union is backing the defence, which must challenge the statute, since the sale of the pamphlet is admitted. The accused says, indeed, that it is only one of 25,000 that he has sold.

Nostrums and Quackery in the Air.

The absence of monopoly in American broadcasting stations has some advantages—e.g., in the variety of programmes to which one has access—and many disadvantages, not the least of which is the type of advertising to which one may be subjected. Each Wednesday evening, for example, one may hear from station KLZ a certain "Dr." Fisher recounting his latest successes in treating diseases of the eye, ear, nose and throat . . . "consultations free, examinations charged for." The Palmer School of Chiropractic owns a very large station, though it must be admitted that their programmes are free from any kind of advertising. Station KFKB is owned and operated by a quack, who specialises in "rejuvenation," and, alas, there are other stations which lend themselves to imposture of one kind or another.

Athletics and Tuberculosis.

The National Tuberculosis Association has announced its intention of investigating the relation of tuberculosis and competitive athletics. Sanatorium physicians have for long drawn attention to the large number of athletes among their patients, and now educational authorities are beginning to question whether competitive athletics are unduly conducive to active tuberculosis. Dr. Walter L. Rathbun has sent a report to the Association, after examining 1000 high school students in Chautauqua County, New York, in the course of which he says:—

"A relatively large percentage of the active cases of tuberculosis were athletes engaged in the major sports. In one of the Dunkirk high schools three lettermen, the catcher of the Fredonia baseball team, and a member of the Jamestown junior high basket-ball team were found to have tuberculosis. The morbidity is relatively high, and I feel that any boy of high school age who indulges in heavy exercise should be not only examined physically but X rayed."

Prof. Bailey, of the University of California, would go further—he would abolish inter-school competition altogether. The only loss, he says would be a financial one. At any rate, there is good case for investigation.

Accident Prevention.

There were approximately 90,000 fatal accident in the United States last year. Some 48,000, or mor than half of these, occurred upon the streets or i public places, 23,000 in homes, and 19,000 in industry In view of the heavy toll of life, its steady increas from year to year, and the certainty that much the loss is avoidable, the Metropolitan Life Insuran Company conducted last year a demonstration i the City of Albany, N.Y., to show what can b accomplished by organisation and education in single community. The first six months of organise effort gave a reduction of 31 per cent. in accident deaths of all types, 71 per cent. in fatal accidents i the home, and 10 per cent. in non-fatal traff accidents, as compared with the corresponding montl in 1925. The main conclusions from this interestir experience are summarised in a pamphlet issued b the company in conjunction with the New Yor State Conference of Mayors, and entitled "Promotir Community Safety."

Women in Medicine.

The Woman's Medical College of Pennsylvani the only medical college in the United States excl sively for women, is appealing for funds to build new and modern home. It is said to be the olde of its kind in the world, having been founded 76 yea ago by two Quaker physicians. Its success has caus medical colleges, which formerly admitted only me to open their doors to both sexes, and some 70 women are now practising medicine in the State The custom by which large firms establish medic departments and insist on regular examinations employees has redounded to the advantage of medic women. The law in this country insists that when medical man examines a woman professionally, the must be a woman nurse present, which means th the employer must pay for the services of two perso His expenses are correspondingly lessened if t doctor is a woman.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENT.)

Tropical Medicine Congress in Calcutta.

THE Congress of the Far Eastern Association Tropical Medicine is now very near at hand, and t organising secretary, Colonel J. Cunningham, I arrived in Calcutta in order to coördinate the arran ments. Delegates numbering over 80 are arriving fr 21 different countries. Each province in India is fu represented officially, and it is encouraging to s that over 1100 medical associates have intimated th intention to be present from all parts of the count Names of renown in the medical world will be amo our visitors: Hata from Japan and Shiga fr Korea, Wu Lien Teh from China, d'Herelle fr Egypt, Heiser and Vedder from America; Siam ser H.S.H. Prince Vallabhakara to head her delegate the League of Nations is represented by Madsen a Gautier; the special guests of the Government India are Sir Malcolm Watson, Prof. J. W. Stephens, and Sir Walter Fletcher. Liberal subscr tions to the funds of the Congress have been sent the Maharajahs of Benares, Nepal, Burdwan a Jhalawar. The railways have played up splendid not only have concession fares and privileges b granted with a lavish hand, but three tours of inter have been arranged to afford opportunity of see the charm and mysticism of India.

Social Hygiene.

Last year's visit of the British Social Hygi Council is slowly bearing fruit, in official circles least. National consciousness to the seriousness the scourge in India is slowly awakening. Inter up to the present has been centred around the s

orts, and an increasing amount of care is bestowed n seamen's welfare by the port authorities in ombay, Calcutta, Madras, and Karachi. Happily the ustees of Indian ports have always taken a broad ew of their responsibilities to those engaged in the aritime trade on which the prosperity of their ports pends, but until a Ministry of Public Health is rmed in the Central Government, or even in ovincial Governments, there will needs be little ordination.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Liver Diet in Anæmia.

Prof. Jakob Pal, who made a tour of American edical centres some time ago, was struck by the ourable results obtained with the Minot-Murphy t in pernicious anæmia, and has been using the thod in his own clinic. He uses an extract of er substance, for he finds that the patients refuse take liver itself over a prolonged period, especially hey are in very poor health, and also because it difficult to get fresh liver daily in sufficient quanti-. He prefers a liquid of the consistency of syrup, easpoonful of which is equivalent to about 250 g. oz.) of liver. The really active factor, Prof. Pal nts out, is as yet unknown; some authors attri- e the favourable effect to a vitamin, others to ie stimulant effect on the metabolism of iron. liquid extract which he uses contains 0·92 per t. of iron, and his observations may be sum- ised as follows: (1) In several cases he produced erythræmia, with an increase in blood pressure as olycythæmia rubra hypertonica. This suggests liver has a stimulant effect. (2) Various changes he nervous system, of the nature of the poly- citis so often noted in pernicious anæmia, have pletely or partly disappeared. (3) Secondary mia, especially after serious hæmorrhage, as well he typical chlorosis of adolescent girls (now rather re condition with us) responded to treatment in ost satisfactory way. The characteristic pink plexion which develops even before the number rythrocytes reaches the normal level is due to richer blood shining through the thin transparent utaneous tissues, and only fades when the layer kin and subcutis becomes thicker.

Unsettled Conditions in the Medical Profession in Austria.

he increasing difficulties of life in this country affecting the relations between doctors and their ents and between medical men themselves. The ession has been complaining of late of the iniqui- of the so-called *Krankenkassa* (sick-clubs), which ide compulsory insurance for all wage-earners. e 1888, when the law was introduced, the number ersons insured against illness has been steadily asing, relatively as well as absolutely, and now y 75 per cent. of the population of large towns, cially Vienna, are in one way or another members he of the numerous *Krankenkassa*, and entitled e medical care. This is a result of the bourgeois ming poorer; and the remaining 25 per cent. lso so badly off that they take care to call in the or only when it is absolutely necessary. The ssion, therefore, has for some time been demand- hat people earning more than a certain amount d be exempted from the benefits of the *Kranken-*. Modification of the existing system would re the passing of a special Act of Parliament, the representatives of the profession have re- dly urged the Government to bring in a Bill he purpose. Four hundred Austrian shillings for the single, or six hundred shillings (£18) for arried is the monthly sum which the profession ds as a suitable limit of income, above which e should pay their own doctor's bill, except for operations or prolonged stay in hospital or ng home. This would mean that all the better clerks, persons employed in the civil or municipal services, bank clerks, cashiers, and even managers and directors of commercial enterprises, who have hitherto been entitled to free medical aid owing to their compulsory membership of the *Krankenkassa*, and who have mostly made use of the facilities afforded them, would again become private patients. The profession further demands that no new *Krankenkassa* shall be set up, and that all insured persons shall be entitled to choose their medical man from among a number of practitioners forming a panel for the sick-club. In other words, the present system of appointing doctors at a fixed salary for a certain district, to give medical assistance only to persons belonging to that area, should be done away with in favour of the "free choice of doctor" system. Payment would be made according to work done—i.e., each medical service would be paid for separately. These two postulates have given rise to serious differences of opinion amongst the members of the Medical Organisation of Vienna, which comprises all the 4000 doctors in the city. The group of sick-club doctors with fixed salaries, numbering about 1200, strongly oppose the idea of "free choice of doctor," not because their salaries and pensions would be in danger, but because their organisation has promised that "acquired rights shall not be touched." The conflict has assumed such proportions that the President, Dr. Stritzko, has resigned the position which he has held for ten years, and the 1200 members threaten to withdraw from the organisation. This would naturally weaken to a great extent the position of this body in their struggle with the Government, which is bound to come, as the profession is intent upon enforcing the income-limit for membership of the sick-clubs, especially for those establishments which exist for the officials and servants of the State and municipalities, which have already adopted free choice of doctor.

Blood Transfusion and Splenectomy.

At a meeting of the Vienna Medical College last month Prof. Jagic and Prof. Burghard Breitner discussed the problems connected with various forms of anæmia. Transfusion, they pointed out, is indicated in acute anæmia or oligæmia after severe loss of blood when it often has a favourable effect on the concomitant shock and also as a preliminary to serious operations—e.g., in cachectic persons. Good results are obtained in thrombopenia, agranulocytosis, and true hæmophilia. In leukæmia, especially of the acute variety, much good does not come from transfusion. In many pathological conditions of the blood the spleen has to be attacked as one of the chief hæmopoietic factors. It has been fully established that its removal does not have serious consequences. In the last statistical review of Tschurenkoff and Herfarth it is stated that extirpation of the spleen cures 83 per cent. of cases of hæmolytic jaundice, 80 per cent. of thrombopenia, 78 per cent. of Banti's disease, 25 per cent. of leukæmia, and 20 per cent. of pernicious anæmia. The method is the only one which promises good results in hæmolytic jaundice. It is indicated only in severe cases, in 176 of which it gave a mortality of 6 per cent. The result is believed to be permanent, and the effect is surprisingly rapid, a preventive transfusion being desirable. In pernicious anæmia the value of splenectomy is doubtful, the improvement generally being no more than temporary. The operation should not be performed at an early stage of the disease. The results in leukæmia are also doubtful, and lately deep irradiation with X rays has seemed to offer better prospects in this disease. In Banti's disease a combination of splenectomy with Talma's operation is often desirable, with preliminary transfusion. In the treatment of all these blood diseases coöperation between surgeon and physician is very necessary.

PROCEEDS OF A HOSPITAL CARNIVAL.—The carnival held in June last on behalf of the Coventry and Warwickshire Hospital produced nearly £27,000. This sum includes a donation of £15,000 from Mr. W. R. Morris.

Correspondence.

"Audi alteram partem."

DUODENAL ULCER IN THE FEMALE.

To the Editor of THE LANCET.

SIR,—In your last issue is a most interesting paper on this subject by my friend, Prof. Wilkie, in which he deals chiefly with what he terms "the cholecystoduodenal syndrome." Though, as he says, "it is notorious that we only see what we look for," it may be allowed that Wilkie makes out a very good case for this syndrome, and he undoubtedly does a service in drawing attention to the symptom complex. I am not concerned, however, with this aspect of his paper, but my reason in writing to you is to draw attention to certain statistical points which he brings out, regarding (1) the relative frequency of gastric and duodenal ulcers in both sexes; and (2) the predominance of duodenal ulcers over gastric ulcers in both sexes. The figures he submits in each case are so closely in correspondence with figures of my own that I have thought it worthy of remark and of record.

My figures have been already submitted in two papers, the first published in your columns on April 7th, 1923, entitled a Statistical Inquiry into the Efficiency of Present-day Methods of Diagnosis of Ulcers of the Stomach and Duodenum, and into the Value of Gastro-jejunostomy in their Treatment, and the second, not yet published, delivered before the James Mackenzie Institute for Clinical Research about three weeks ago. The former of these papers dealt with two separate short series of cases. The latter paper was concerned with a more recent, somewhat larger series, purely of cases dealt with in my wards in the Western Infirmary, Glasgow. Wilkie's figures include, I understand, both hospital and private cases. The correspondence between his figures and mine is very striking, and, taken together, I think they may be taken as settling the proportions of these different ulcers in both sexes. Here they are.

Ratio of Gastric to Duodenal Ulcers.

Wilkie: 52 gastric ulcers, 310 duodenal ulcers ..	1 to 6
Young (three series combined): 30 gastric ulcers, 244 duodenal ulcers	1 to 8

Incidence of Gastric and Duodenal Ulcers in Both Sexes.

Wilkie: 22 gastric ulcers, 234 duodenal ulcers (Male sex.) ..	1 to 11 (approx.)
30 gastric ulcers, 76 duodenal ulcers (Female sex.)	1 to 2½
Young (last series): 10 gastric ulcers, 112 duodenal ulcers. (Male sex.)	1 to 11
8 gastric ulcers, 16 duodenal ulcers. (Female sex.)	1 to 2

In the light of these figures, it seems to me that it is justifiable to say that, in a case of gastric or duodenal ulcer, either chronic or perforated, and of doubtful location, the general as well as the sex incidence have a definite value in local diagnosis.

I am, Sir, yours faithfully,

ARCHIBALD YOUNG.

The University, Glasgow, Dec. 10th, 1927.

SURVIVAL AFTER OPERATION FOR BREAST CANCER.

To the Editor of THE LANCET.

SIR,—From the discussion at the Medical Society of London it appears that at the Cancer Hospital recurrence after the post-operative use of X rays has been "earlier and more rapid than in cases treated by surgery alone," and that no case has been cured by radium. Also at the West London Hospital no case has been "either improved or cured by X ray treatment." At the Middlesex Hospital may I say the results appear to be otherwise? Several primary cases have remained well with no signs of recurrence for three to five years after treatment by X rays or radium; in the post-operative group (mostly in Stage II. at operation) the three years' freedom from recurrence has been 47 per cent.—considerably more than percentages reported from the purely surgical treatment of similar groups of cases; and there l been a 22 per cent. three-year "cure" of ma recurrent cases.

I believe these differences must be due in la part at least to different radiological techniques. at the Cancer Hospital the very mild techni recommended by Dr. Robert Knox of applying "first dose along the line of the scar unfiltere ("Radio-therapeutics," 1918, p. 462) has been carr out, then there could not be easily devised a bet method of testing clinically whether there is o not a stimulating effect from X rays on any remain cancer cells lying deeper than the skin! The Vie school deny that there is clinically any stimulat dose of X rays, but Mr. W. E. Miles now bri forward apparently clinical evidence of its existen May it not be, however, that the stimulation i result of the operation? For I have seen seven eight cases which showed rapid widespread rec rences locally within a few months after operati to whom *no* radiation had been given, and these ca may be a clinical confirmation of the experimen finding that the best way to stimulate an ani tumour's growth is to cut into it. When surgery radiation are both employed is it not indeed diffi to estimate the comparative value of each?

Contrariwise to the Cancer Hospital techni (? insufficient dosage) the so-called "Erlange method used at the West London Hospital not o has not been used at Erlangen in post-operat work, but (unless special glancing methods are us intensive post-operative radiation in breast cases actually been found in several clinics to increase proportion of recurrences, owing to excessive gen effects.

How important technique is, in radiological a operative treatment, surely should not need to emphasised; but too often in discussions the poss variations in X ray and radium methods appea be forgotten in the estimation of results.

I hope soon to publish details of the observati and conclusions come to from over 500 cases breast cancer, treated with X rays or radium, already briefly reported at the Edinburgh meeting July.—I am, Sir, yours faithfully,

J. H. DOUGLAS WEBSTE

Chandos-street, Cavendish-square, W., Dec. 10th, 1927.

SIZE OF BRAIN AND MENTAL CAPACIT

To the Editor of THE LANCET.

SIR,—Regarding Dr. Bernard Hollander's comm on the relation between the size of the brain mental capacity, the following points may s worthy of consideration. The evolution of the m malian brain has essentially been an evolution of cerebral cortex. This has involved a multiplica of cortical neurons; this, again, has led both t increase in the thickness of the cortex and in extent of its surface; and this increasing surface necessitated a progressive increase in the size of brain. Now a big head has certain disadvanta not only does it involve an extra supply of nutrim and an extra powerful skeleto-muscular appar to support it, but it further predisposes to inj It being thus an advantage to limit, as far as sible, the size of the brain, the increasing exten the cerebral cortex has led to its being involute process which has enabled the surface of the co to be increased without increasing to a correspon degree the surface of the cerebrum as represente a cerebral cast.

During the evolution of the human brain from anthropoid phase there has been, as it were, a tinued attempt to limit, in the way indicated, increasing bulk of the brain necessitated by increasing superficies of the cortex. In some br this has been more successful—i.e., the involut are more numerous and deeper—than in oth It follows that the size of the brain is not an abs index of cortical extent. This is a fairly accu measure of cortical evolution; not, indeed,

rely accurate one, for, among other falsifying ors, the average thickness of the grey cortex is ter (and conceivably richer both as regards the ber and the complexity of the neurons it con- s) in some brains than in others. Hence the size ne brain is no certain index of the number (and plexity) of the neurons it contains. Broadly, the ber of cortical neurons is a fairly accurate index ental capacity, for their number has increased passu with the evolution of the vertebrate cere- n; and here let me incidentally record the nent fact that among mammals neurons, includ- hose of the cortex, do not multiply after birth, natter how strenuously they are thereafter exer- either by education or otherwise. Does not seem to dispose of the view that inheritance of tic acquisitions has been a factor in the evolu- of the mammalian cortex cerebri? Does it not definitely to prove that the increase in the ber of cortical neurons, which has accompanied been an essential part of that evolution, has n place by the natural selection of individuals ssing a super-average number of cortical neurons? ming now to observed facts, it would appear a distinctly small head more often goes along sub-average intelligence than a distinctly large goes along with super-average intelligence— while two out of three of the former class show verage intelligence, only one out of three of the class show super-average intelligence. If a clever person has a very small head, we may be ne has excellent cortical tissue, excellent inter- al connexions, a richly convoluted cortex, and cortical sulci. As a matter of fact, it is excep- to find clever men with small heads. Beacons- Gladstone, Salisbury, Rosebery, Campbell- rman, Balfour, Asquith, Lloyd George—all aded men—rose successively to the highest on in the State. In their case large brain and capacity manifestly went together.

Hollander referred to the emotional (as dis- shed from the intellectual) aspect of mind, ered in its relation to size of brain. So far as ns the cruder, more violent emotions, as dis- —e.g., in anger, fear, and the mating instinct— noteworthy that quite small masses of grey is tissue suffice to subserve them. One may s all these emotions powerfully displayed by birds with brains no bigger than a pea; and probably that our own strong emotions are ly subserved by quite a small mass of grey located in each of the thalami. The cortex pertains essentially to intellect.

I am, Sir, yours faithfully,

y-street, Dec. 10th, 1927. HARRY CAMPBELL.

THE TOXÆMIAS OF PREGNANCY.

To the Editor of THE LANCET.

SIR,—My experience of medical cases and more lly mental derangement, which have arisen equel to a toxic condition during pregnancy s me to ask the favour of your columns to o the interesting monograph on the above recently published by Drs. J. N. Cruickshank, itt, and K. L. Couper, the research being con- under the ægis of the Medical Research Council. ef object is to ask a question and to make stion. The question is prompted by the fact to in your leading article on the subject in ue of Dec. 10th that the results of their instruc- l elaborate research had been largely negative as any fresh light on the problem was con- the main conclusion arrived at by the authors ummarised as follows: "If the toxæmias of cy have a common cause it is some form of tion by the break-down products of placental The possibility of an intestinal auto-intoxica- ng of ætiological importance is briefly referred is not seriously regarded, but the open mind uthors on the subject is shown by the state- nat "the importance of this factor in the production of toxæmia in the view of the Dublin school is shown by their insistence on colonic lavage as a means of treatment."

The report is based on the results of "a full clinical examination and a study of certain aspects of the chemistry of the blood and urine." In my view the existence of any potential or actual auto-intoxication has to be determined by the examination of the centrifugal deposit obtained from a carefully collected specimen of urine, attention being directed to the presence of bacteria and cellular constituents, and to the careful examination of the stools or a wash-out of the bowel, reliance being placed on the sound use of the unaided senses. No information under either of these heads is given in the valuable record of 200 cases investigated. To those who attach importance to the rôle of auto-intoxication as a factor of great importance in the ætiology of many chronic and acute diseases, information as to the state of the urine and stools in the series of cases would be of the greatest interest. My general experience leads me to think that in any series of 200 cases of toxæmia in pregnancy the examination of the urine would reveal a marked degree of bacteriuria in at least 90 per cent. of the cases, and the examination of the intestinal contents as voided would reveal unmistakable evidence of a high degree of abnormal putrefaction in every case. I think it probable that it is along these lines that we will ultimately find the common cause, if such exists.

I am strengthened in this opinion by the facts of comparative medicine. It is very rare to find any clinical evidence of toxæmia in pregnancy in the lower animals. I recently asked a capable and thoughtful stock-owner and breeder of very wide experience the secret of his great success in the management of his stock. His answer was instructive: I watch the skin and the droppings of my animals. The suggestion that I wish to make is the desirability of a further series of observations being made, in which attention is directed specifically to the two lines of inquiry referred to. The results could hardly fail to be of great interest and value. This research would have the merit of being one that could be very simply and effectively carried out, no high degree of laboratory training being essential.

I am, Sir, yours faithfully,

Edinburgh, Dec. 10th. CHALMERS WATSON, M.D.

ALKALI TREATMENT IN FEVERS.

To the Editor of THE LANCET.

SIR,—Dr. B. A. Peters in THE LANCET of Dec. 10th (p. 1232) refers to work of mine on the prevention of scarlatinal nephritis by the administration of alkalies by mouth. He presents figures to show that at his hospital 4000 odd cases were treated with alkalies and that the incidence of nephritis in these was the same as, or even a little higher than, in a similar number of untreated cases. The alkalies, however, were only given during the acute stage of the fever, usually about a week. It is scarcely necessary to point out that nephritis rarely occurs before the tenth day of the disease, that is, at a time when the cases referred to by Dr. Peters were not having alkalies, the figures he gives therefore being without value in this connexion. In fact, they merely show that the incidence of this complication was practically the same in the periods 1910–17 and 1918–27.

Repeated estimations of the alkali reserve have been made at intervals throughout the course of the disease in a large number of cases, and these show that a condition of acidosis (depletion of the alkali reserve) persists in the majority of cases for many weeks. It is for this reason that I have advocated the giving of alkalies in the later stages when nephritis is likely to occur. It is also probably because of this continued acidosis that symptoms of alkalosis have never yet been met with in now approximately 1000 cases treated with alkalies in the doses suggested. Incidentally, similar observations have been made of the alkali reserve in cases of scarlet fever having

throughout a vegetarian diet and on others having a high sugar diet. These figures will be published in due course. Dr. Peters notes that there were four cases of nephritis in my alkaline series, one ending in death, but he does not mention that in three of these cases the alkali had been omitted 48 hours before the nephritis occurred, or that in the fatal case the kidneys at autopsy showed microscopical evidence of an antecedent chronic nephritis.

Finally, I would like to take the opportunity of pointing out that I have only suggested the use of alkalies in scarlet fever for the prevention of nephritis and not as treatment for the primary disease.

I am, Sir, yours faithfully,

London, Dec. 11th, 1927. A. A. OSMAN.

THE TUBERCLE OF THE FIFTH METATARSAL.

To the Editor of THE LANCET.

SIR,—I should like to congratulate Mr. A. G. R. Foulerton and Dr. G. F. Stebbing on their very interesting paper on Fractures of Metatarsal Bones by Indirect Violence, with special reference to Avulsion Fracture of the Tubercle of the Fifth Metatarsal (THE LANCET, Dec. 10th, p. 1225).

May I at the same time point out that while they quote Testut and Grüber as having met only three cases in which the tubercle of the fifth metatarsal was a separate bone, in reality a separate ossific centre for the styloid of the fifth metatarsal occurs quite commonly. In radiograms of 50 subjects between the ages of 10 and 17 I found a styloid epiphysis present in 14 (28 per cent.), and in a paper on the subject, recently sent to the *Journal of Bone and Joint Surgery*, while speculating on the occurrence of this epiphysis I suggested that it may represent a traction epiphysis produced by the tendon of the peroneus brevis or possibly the abductor of the fifth metatarsal (Wood's muscle) frequently present in man.—I am, Sir, yours faithfully,

LAMBERT ROGERS,
Surgical Unit, Welsh National School of Medicine,
Dec. 12th, 1927. Royal Infirmary, Cardiff.

STATUS OF MENTAL NURSES.

To the Editor of THE LANCET.

SIR,—You commented last week on the meeting of the Royal Medico-Psychological Association at which this subject was considered. My own view may be stated thus. In any attempt to assess the comparative merits of the examinations of the Royal Medico-Psychological Association and the General Nursing Council for Mental Nurses, the following points deserve consideration: 1. Registration should give every nurse a national qualification and status. 2. The preliminary examination should be the same for all branches of nursing, so that a nurse can qualify in more than one branch without undergoing a test in practical elementary nursing more than once. 3. The devising and management of examinations for nurses should be in the hands of the nursing profession. The certificate of the Royal Medico-Psychological Association provides none of these things.—I am, Sir, yours faithfully,

H. WOLSELEY LEWIS,
Medical Superintendent, Kent County Mental
Dec. 12th, 1927. Hospital, Maidstone.

MERCUROCHROME INTRAVENOUSLY.

To the Editor of THE LANCET.

SIR,—Mr. Martindale's warning, under this heading in THE LANCET last week, is warranted. In "New and Non-Official Remedies," a volume in which are entered products approved by the Council on Pharmacy and Chemistry of the American Medical Association (and accepted by them for inclusion) there will often be found precepts of practical value to British practitioners.

I am, Sir, yours faithfully,

M.D.

MEDICINE AND THE LAW.

DAMAGES AGAINST A SURGEON.

AFTER conflicting evidence, a verdict was give the plaintiff in the case of Tyndall *v.* Alcock at Br Assizes in an action for damages for negli brought against a surgeon. A girl of 8 years o fell from a donkey in July, 1926, and fractured left arm. She was then taken 10 miles in a moto to Gloucester where she was treated by Dr. A Alcock, at first in a nursing-home and later in Gloucester Royal Infirmary. The case for plaintiff was that the arm became fixed at the e and, as the result of the development of Volkm contracture, movement was permanently impa Dr. H. Chitty, giving evidence for the plaintiff, that he examined the patient in October, 1926, found no voluntary movement of the wrist, fin and thumb; there was fixation and contracture as usually arose from tight bandaging or s pressure. Dr. Alcock, the defendant, gave evi that at his first examination he found a fractu the lower end of the humerus; the fragments in a bad position, the elbow slightly swollen, an ends of the bone injuring the tissues. He manipu the bones into position and a screen examin showed the fragments in alignment; he was sat that the fracture had been properly reduced. arm was then suspended from the shoulder an X ray photograph obtained. He stated—though was one of the facts in dispute—that he had fro first taken a serious view of the injury and h informed the girl's mother. The upper bony frag was almost through the skin and threatened s damage to other structures. He gave instru that the circulation should be carefully wat Next day the hand was slightly swollen an bandages were loosened. Four or five days there was more discoloration. He realised circulation was obstructed; the bandages loosened and the strapping removed. Three o days after the accident he suspected the possi of Volkmann's contracture; by the third we treatment he was sure of it. He knew the fra was slightly over-reduced, but he thought advisable since it involved less interference wit blood-vessels. Prof. Hey Groves, of Bristol, evidence for Dr. Alcock, as also did Dr. C. V. K (senior surgeon at the infirmary), the matron nursing-home, and a masseuse. Prof. Groves obs that the skiagram showed severe fracture o lower end of the humerus with satisfactory redu or over-reduction; if symptoms of Volkmann's tracture occurred, it was much more importa restore circulation than to restore alignment. thought Dr. Alcock had adopted the proper of treatment. Counsel for defendant submitte Dr. Alcock had not omitted any necessary ste had made radiological examinations in consul with a skilled radiologist. The jury, after an a of one and a half hours, returned a verdict th defendant had not properly set the bone an failed to treat the case properly afterwards. Justice Shearman refused to accept this, and, a fresh retirement, the jury found a verdict f plaintiff with £2000 damages and £150 for the m A stay of execution was granted on terms.

REDHILL HOSPITAL, EDGWARE.—Mr. N Chamberlain, the Minister of Health, last week open new Redhill Hospital, Edgware, which has been built Hendon Board of Guardians at a cost of £123,000. are at present 175 beds, but the accommodation extended in the future to provide for 500. In his Mr. Chamberlain pointed out that in the county of Mid the voluntary hospital accommodation, in proportion population, is considerably below the average for the of London, or even for the country. The new institu essentially for the treatment of acute medical and s cases.

Obituary.

JOHN PRIOR PURVIS, M.R.C.S. ENG.

WE have already briefly referred to the death of Dr. J. P. Purvis, which occurred at Greenwich on Nov. 18th, in his eighty-seventh year. He was the eldest son of the late Prior Purvis, M.D., of Blackheath, and was educated at Greenwich and at Blackheath Proprietary Schools. In 1859 he became a medical student on the *Dreadnought* hospital ship at Greenwich, afterwards proceeding to St. Thomas's Hospital, whence he graduated as L.S.A. and M.R.C.S. in 1863. For the next four years Dr. Purvis acted as house surgeon at the West Herts Infirmary at Hemel Hempstead, after which he began general practice at Greenwich as his father's partner. In 1869 he became medical officer to the Royal West Kent Dispensary (now the Miller General Hospital), and in 1885 he took up a similar appointment at the Greenwich Provident Dispensary, where he worked until his retirement two years ago. Like his father before him, Dr. Purvis was treasurer of the West Kent Medico-Chirurgical Society, having held that office since 1897. He was a keen Volunteer, serving as surgeon to the 2nd Volunteer Battalion of the Queen's own Royal West Kent Regiment, and was granted the volunteer decoration. For many years, also, he was lecturer for the St. John Ambulance Brigade, and he was appointed an honorary associate of the Order of St. John of Jerusalem. A public vaccinator since 1870, he was still engaged in this work four days before he died.

Dr. Purvis married in 1868 the elder daughter of the late Mr. William Vaughan, of Blackheath. He is survived by two of his five sons, and by both his daughters.

ALEXANDER ROBB, M.D., D.P.H. ABERD.

Dr. Alexander Robb, who died on Nov. 25th at his home in Corstorphine, had been since 1909 medical officer of health for the counties of Midlothian, West Lothian, and Peebles. Born at Cruden in 1870, he was the son of Mr. Andrew Robb, and was educated at the University of Aberdeen. After graduating with honours in 1895, he spent a short time in private practice before being appointed assistant medical officer to the county of Lanark, a post which he held until 1901. In that year he became medical officer of health for Paisley, where he induced the council to establish a municipal laboratory, chiefly for bacteriological work. Since 1909 he had been continuously at work in the Lothians, for during the war his services were retained for administrative purposes, and he had to take over the supervision of extra districts to relieve other medical officers.

Dr. Robb married a daughter of the late Mr. David McLardie, and she survives with one daughter.

ROBERT DUNSTAN, M.R.C.S. ENG.

Dr. Robert Dunstan, who died on Nov. 27th in his eightieth year, was by birth a Cornishman and for many years in practice at Plymouth and Ugnton. Educated privately and at Wadham House, Liskeard, he started his medical career as assistant to a local practitioner but afterwards went to London as a student of Guy's Hospital, qualifying L.S.A. in 1871 and M.R.C.S. in 1872. Among the appointments which he held at various times were those of medical officer to the Penzance rural, and of St. Ives urban, sanitary authorities, Admiralty surgeon under the Trinity Board, and medical officer in charge of troops at Paignton, where he settled in 1. Much of his professional life, however, was spent in London and of late he had lived in retirement at Brighton. Dr. Dunstan was at one time a well-known amateur chess player.

He was a widower and leaves two sons and two daughters.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

MENTAL DEFICIENCY BILL.

AT the close of a late sitting of the House of Commons in the early hours of Tuesday morning, Dec. 13th, the Mental Deficiency Act, which had been amended in Standing Committee, was considered on report. The Bill could only be taken at that hour if unopposed, and some objection being taken from the Labour benches it seemed at first that there was some danger of the measure being lost owing to the congested state of Parliamentary business at this period of the session. The Labour opposition, however, was not persisted in. On Clause 1 (which defines defective persons) Mr. B. CROMPTON WOOD, who was in charge of the Bill, moved two amendments to para. (*d*) of the clause, which were agreed to without discussion. As a result of these amendments para. (*d*) now reads as follows: "Moral defectives, that is to say, persons in whose case there exists mental defectiveness coupled with strongly vicious or criminal propensities and who require care, supervision, and control for the protection of others." The Bill was then read the third time, without discussion.

HOUSE OF LORDS.

THURSDAY, DEC. 8TH.

LANDLORD AND TENANT (NO. 2) BILL.

THE House went into Committee on the Landlord and Tenant (No. 2) Bill, the Earl of KINTORE in the chair.

On Clause 16 (holdings to which Part I. of the Bill applies),

Viscount SUMNER moved to amend the proviso at the end of the clause relating to improvements to premises used for carrying on a profession. He said that it was rather anomalous that this part of the Bill gave a benefit to people who carried on a trade or business, but declared that for the purpose of improvements of premises in which that trade or business was carried on, premises in which a profession was carried on "shall be deemed to be premises used for carrying on a trade or business." The form in which this was expressed was rather a reflection on those who carried on a profession, but nobody quite knew what a profession was. Nevertheless, the provision had a practical object, and he would like it to be as clear as possible. He did not think anyone could define a profession for the purposes of the Bill; at any rate, the Bill did not attempt a definition. Whether it was a professor of deportment, a professor of dancing, a professor of music, or a professor of occult science was a thing which the tribunal would be faced with; but so far as he knew, the principal premises in which a person could be properly carrying on a profession otherwise than in offices were those which he proposed to mention at the end of the clause so as to clear the matter up. The proviso would then read:—

"Provided that so far as this part of this Act relates to improvements, premises used for carrying on the profession of a qualified physician, surgeon, solicitor, notary public or architect, shall be deemed to be premises used for carrying on a trade or business."

There was a practice by which in the country solicitors and notaries and architects carried on their profession, a genuine profession, in the house in which they lived, and of course, physicians and surgeons constantly did so. It appeared to him that if those persons, if duly qualified, were declared to be the professional men for whose protection this subsection was introduced, it would prevent claims and sometimes expensive and perhaps doubtful discussions before the tribunal as to the persons whom the clause was really intended to benefit.

Viscount BERTIE OF THAME: Can the noble viscount tell me why he has omitted dentists?

Viscount SUMNER: Because I did not think of it.

Viscount BURNHAM said he thought it would be very unwise to adopt a narrowing and restrictive amendment of this sort. *Expressio unius est exclusio alterius.* It meant that all these multifarious professions which had a genuine goodwill attaching to the premises in which the profession was carried on, and in which improvements were made for the purpose of carrying on the profession, would be left out of the Bill. In the East End of London there were many doctors who had consulting-rooms which were really in the nature of shop premises. At some time they had actually been shops, and had been added to and made more convenient for the practice of the profession. Dentists were in exactly the same category, and it would be most unwise, without further consideration, to state that some kinds of professions, or some professional callings, came under this heading by the adoption of words of this sort.

Once adopted these words would limit the right to compensation to the particular classes specified in the Bill.

Viscount SUMNER said that he accepted "dentist," but he entirely rejected "specialist."

Lord DANESFORT said that he agreed that the word "specialist" was a very vague one. There was no definition of it in the Bill, and it would be extremely undesirable that a man who wanted to claim compensation for improvements should have to go through an expensive law suit to see whether he was a specialist within the meaning of the Bill. He urged the Lord Chancellor to accept the amendment, and, if before the report stage there appeared to be any other legitimate professions which ought to be inserted in this clause, it would be possible to include them.

Lord JESSEL thought that it would be very difficult to limit the classes. In London they saw advertisements of dancing mistresses in the newspapers. That was a profession, and the improvement of their rooms was of great moment to them. How were they going to omit them if they admitted dentists? They had also left out veterinary surgeons. It would be better to leave it alone and not create another class of privileged person. People should be left to fight it out.

The LORD CHANCELLOR said that with great deference to Lord Sumner he thought it would be better not to try to insert a list of these professions. Already they had had suggested the dentist, the teacher of dancing, the veterinary surgeon, the bone-setter, the engineer, who had just as much right as the architect and the surveyor. If they went on thinking they would find other categories that ought to be added.

Viscount SUMNER said that it was obvious that he could not press the matter, but he said quite seriously that their lordships were deliberately opening a door to a large amount of ridiculous litigation by persons who were entitled to say that they were as good professional people as solicitors or architects or dentists. The whole sentiment of the Bill was in favour of the claimant, and they would find that persons were getting compensation for their improvements who were persons never contemplated by those who framed the Bill. He asked leave to withdraw the amendment.

The amendment was, by leave, withdrawn.

HOUSE OF COMMONS.

WEDNESDAY, DEC. 7TH.

International Maternity Convention.

Mr. ROBERT YOUNG asked the Minister of Labour whether, now that the Government of the German Reich had ratified the International Labour Office Convention on maternity protection, he would expedite its ratification by His Majesty's Government.—Sir ARTHUR STEEL-MAITLAND replied: The general reason which led His Majesty's Government delegates at Washington in 1919 to abstain from voting for the adoption of the maternity convention, and which led successive governments to refuse to ratify, are that, in the British view, the benefits provided under the health insurance scheme and other social services already in operation in this country are in accordance with the policy of the convention and are, indeed, in some respects in advance of those embodied in the convention.

Mr. YOUNG: Is the right hon. gentleman not aware that the maternity mortality has not decreased in this country during the past 15 years, and is not that a reason for ratification of the convention?—Sir A. STEEL-MAITLAND: I will communicate the first part of the question to the Ministry of Health. As regards ratification of the convention this country has already in force a policy aiming at the same results and it was considered that the adoption of the specific proposals made in the convention would lead to serious administrative difficulties, and that the benefits which might be so conferred would be restricted to a more limited class.

Agriculturalists and Health Insurance.

Mr. DIXEY asked the Minister of Health whether he is aware of the fact that there was a general desire among agriculturalists to have a separate health insurance scheme for the industry; and, if so, would he consider the matter.—Sir KINGSLEY WOOD replied: The answer to the first question is in the negative. As regards the second, I may remind the hon. Member that under the present general scheme of National Health Insurance it is open to persons employed in agriculture to form approved societies of their own and thus to secure to themselves the full advantage of the contributions payable by and in respect of them. A number of such special agricultural and rural societies have, in fact, been formed and are administering the scheme with favourable results to their members.

Old Age Pensioners and Sickness Benefit.

Mr. CONNOLLY asked the Minister of Health whether an insured person who was in receipt of full sickness benefit under the National Health Insurance Act, on attaining the age of 65 years, or under the 1908 Act at 70 years would be compelled to give up sickness benefit and appl for the old age pension.—Mr. CHAMBERLAIN replied: Up t the present time the position has been that an insure person's right to sickness or disablement benefit has cease on his attaining the age of 70. Under a provision of th Widows', Orphans', and Old Age Contributory Pension Act, 1925, the right to these benefits will cease at age 6 in all cases as from Jan. 2nd next, after which date old ag pensions will be payable to persons aged between 65 and 7 who are duly qualified.

Complaints against a Public Vaccinator.

Mr. BROAD asked the Minister of Health whether he wa aware that Dr. Pearson, medical officer to the Buckingha institution and public vaccinator for the Leckhampstea district of the Buckingham union, called on Mrs. Rodwel of Chackmore, on Tuesday, Sept. 20th, and demanded tha her five children, whose ages ranged from 19 years t 8 years, and who had been exempted by their father fro vaccination, should be vaccinated, on account of two cas of small-pox that had been found at the Buckingha institution, situated a mile and a half away from Mr Rodwell's home; that Mrs. Rodwell told Dr. Pearson tha the children would not be vaccinated on account of h husband's strong objection to the operation, the fath being at the time kept in isolation at the institution; tha Dr. Pearson threatened to have the post office, kept b Mrs. Rodwell, closed if she and the children were n vaccinated, and also to stop the boys from working unle they agreed to be vaccinated; that Mrs. Rodwell gav way and had herself and the children vaccinated in th unwarranted belief that Dr. Pearson had power to clo the post office; whether he would point out to Dr. Pearso that in his capacity of public vaccinator his duty consist in offering to vaccinate children who were neither exempt nor vaccinated, and that he had no right to threaten objecto to the operation; and what fee Dr. Pearson received f the vaccination of Mr. Rodwell's children and Mrs. Rodwe —Mr. CHAMBERLAIN replied: I have made inquiries regard to this matter, and am informed that the followi are the facts: Dr. Pearson called on Mrs. Rodwell ar offered to vaccinate her and her children because they ha been in contact with her husband, who was employed at t Poor-law institute where cases of small-pox had occurre An elder daughter, who had returned to the house for tha purpose, expressed willingness to be vaccinated. Mr Rodwell at first demurred to the vaccination of hers and a younger child, and Dr. Pearson suggested that s should telephone to the institute and obtain Mr. Rodwell permission. This she declined to do, but, on being inform by Dr. Pearson the her husband was being vaccinated, s consented to the vaccination of herself and the younge child. Three other members of the family went to D Pearson's surgery and were vaccinated. Dr. Pearson w not informed that declarations of conscientious objecti had been made in respect of the children. He told Mr Rodwell that, having regard to the fact that she kept post office, she should be vaccinated, as otherwise he fe it would be his duty to inform the authorities, but he deni having used any threats. There does not appear, therefor to be any reason for taking the action suggested by t hon. Member. The doctor's fee for which the guardians a liable, for the vaccination of Mrs. Rodwell and her childre amounts to 22*s*.

Houses Built Since the War.

Mr. POTTS asked the Minister of Health the total numb of recorded dwelling-houses actually built and tenant for the years 1914 to 1926, inclusive, for England a Wales.—Sir KINGSLEY WOOD replied: The informati desired by the hon. Member is not available, but the numb of houses erected from the Armistice to March, 1927, w approximately 866,500.

THURSDAY, DEC. 8TH.

Reform of Penal Methods.

Sir JOHN POWER asked the Home Secretary wheth he contemplated any changes in the penal methods appli to habitual criminals.—Sir W. JOYNSON-HICKS replied: T matter is always in my thoughts, but no change of importan can be made until after exhaustive inquiry.

Open-air Schools in Mining Areas.

Mr. BARKER asked the President of the Board of Educati if he was prepared to issue to local education authoriti a special instruction to take immediate steps to provi the necessary open-air school accommodation for t increasing number of children in the mining areas wh by reason of the distress prevailing, were suffering fro latent tuberculosis, debility, and anæmia; and would consider whether the emergency called for special organis tion on behalf of the child sufferers from industrial depressio

Lord EUSTACE PERCY replied: In regard to the general estion of open-air schools, I would refer the hon. Member to e answer which I gave him on Feb. 17th last. I am inclined doubt whether the effect of the industrial depression mining areas on the health of the children has been as rious or as general as the hon. Member suggests, and ether any ill-health which does exist can be dealt with the provision of open-air school accommodation, but am taking steps to have a special inquiry made by one the Board's medical officers into the whole situation in uth Wales.

Position of the Voluntary Hospitals.

Mr. LUNN asked the Minister of Health what was the tal number of beds provided in voluntary hospitals roughout the country on Dec. 31st, 1925, and what was e number to-day; what was the financial position of luntary hospitals in the aggregate at the latest date of ich he had information; and what powers had the Cave mmittee to mitigate the financial difficulties of these spitals.—Mr. CHAMBERLAIN replied: I have no official ures showing the position at the end of 1925, but the rvey carried out by the Voluntary Hospitals Commission owed a total of 50,460 beds in voluntary hospitals in gland and Wales at the end of June, 1924. On the best ormation at my disposal the corresponding figure at c. 31st, 1926, was 54,406 beds, or an increase in the erval of two and a half years of 3946 beds. As regards the ond part of the question, according to the reports of ng Edward's Hospital Fund and of the Red Cross Society, London hospitals showed an aggregate deficit of £39,000 1926, and the rest of England and Wales showed an gregate surplus of £286,000, the combined figures giving iet surplus of £247,000 for the whole of England and les. As regards the third part of the question, Lord ve's Committee completed their inquiry six years ago. he hon. Member is referring to the Voluntary Hospitals nmission, the answer is that the Commission have eady distributed the full amount voted by Parliament, they have no funds now at their disposal. The figures ave given are sufficient to show that the financial position the voluntary hospitals generally has greatly improved e Lord Cave's Committee issued their report in 1921.

Preservatives in Dairy Produce.

ieut.-Colonel RUGGLES-BRISE asked the Minister of lth the nature of the preservatives most commonly d in the imports into this country of dairy produce, cially as regards the following articles: butter, cheese, m, liquid milk, and condensed milk.—Mr. CHAMBERLAIN ied: Preservatives are not now allowed in any dairy luce, whether imported or produced in this country, pt butter and cream, and the prohibition will apply to e articles also on Jan. 1st next. I am informed that, n butter or cream contains preservatives, the substance is usually a preparation of boric acid.

Cost of Inmates in Poor-law Institutions.

r. RITSON asked the Minister of Health whether he ld state for the latest convenient date the average per head per week of persons maintained on indoor f in Poor-law institutions; and the most frequent rate harge per head per week for pauper inmates in county tal hospitals.—Mr. CHAMBERLAIN replied: The average rly cost per head for the year ended March 31st, 1926, ding the cost of buildings and loan charges, of the ons maintained in Poor-law institutions in England Wales, was 27*s.* 8*d.* The rate of charge per head per for pauper inmates in county mental hospitals would oximate to 22*s.* 6*d.*

Human Beings and Foot-and-Mouth Disease.

. VERNON DAVIES asked the Minister of Health if he any evidence of any cases of foot-and-mouth disease man beings during recent years; and, if so, would ve details of such cases, showing the source of infection he result of each case.—Mr. CHAMBERLAIN replied: So s I am aware no case of foot-and-mouth disease in a an being has occurred in this country in recent years. only two cases of suspected foot-and-mouth disease of I have any record were investigated by a medical r of my department and in neither case could any rmation, either clinical or biological, be found to support suggestion that the patient was suffering from this se.

Health Conditions in Offices.

ut.-Colonel FREMANTLE asked the Minister of Health view of the health conditions prevailing in many s, he was satisfied that the inspection of offices at nt carried on, and the powers of local sanitary authori- London and elsewhere, were sufficient for the purpose. . CHAMBERLAIN replied: I have no evidence that the h conditions generally prevailing in offices are such as ll for special action. The present powers of local authorities in the matter have not been shown to be insufficient, but the measure of inspection at the present time cannot but be conditioned by financial circumstances.

Lieut.-Colonel FREMANTLE: Is it not a fact that health rates and sickness rates in offices are worse than among the general population and therefore justify inspection and inquiry?—Mr. CHAMBERLAIN: I have no evidence of that.

Lieut.-Colonel FREMANTLE: If I give the right hon. gentleman that evidence, will he look into it in conjunction with the Standing Joint Committee of the Metropolitan Boroughs, who have had this matter under consideration for a long time?—Mr. CHAMBERLAIN: I shall certainly be glad to consider any evidence which my hon. friend produces.

Death-rates from Tuberculosis.

Mr. HORE-BELISHA asked the Minister of Health what was the mortality during the last five years of persons suffering from tuberculosis.—Mr. CHAMBERLAIN replied: The crude death-rate in England and Wales from all forms of tuberculosis for the years 1922 to 1926 were, respectively, 1121, 1062, 1058, 1038, and 961 per 1,000,000 persons living.

Adulteration of Food.

Major AINSWORTH asked the Minister of Health whether, in view of the fact that in 1926–27 his department, in examining samples of liquid eggs, found that one-third of the quantity were either adulterated or not up to standard, and that in 1926 28,600 tons of this article were imported into this country of which 9533 tons might be proportionately regarded as equally unsatisfactory, he proposed to make further investigation to prevent the influx of such material which was not up to the proper standard of good human food.—Mr. CHAMBERLAIN replied: I understand that some, if not all, of the samples of liquid egg which were reported against by the public analysts in 1926 were regarded as adulterated by reason of the presence of an excessive amount of boric acid preservative. The complete prohibition under the Preservatives Regulations of the presence of any preservative in egg-yolk and articles prepared therefrom takes effect on Jan. 1st next, and as these regulations apply to importation as well as sale, it may be expected that further cases of such adulteration will not occur.

Diphtheria and the Schick Test.

Mr. DAY asked the Minister of Health whether the officials of his department had come to any decision for the purpose of recommending to the health authorities of England and Wales the Schick test and immunisation methods for the prevention of diphtheria; and what progress had been made.—Mr. CHAMBERLAIN replied: I am advised that this method of protection against diphtheria is one of proved utility. The evidence collected in regard to it has been made available to the local health authorities in reports from my department, notably in the last Annual Report of the Chief Medical Officer (1926, pp. 52–53), as well as in a Report on the Prevention of Diphtheria issued by the Medical Research Council during the present year (M.R.C. Report 115). The official memorandum issued by my department on this subject in 1922 is now being revised, and the new edition will re-indicate the action which it is open to local health authorities to take in the promotion and the use of this method of protection, and the assistance which they may obtain for this purpose from the Ministry of Health.

Road Fund Grants to Hospitals.

Mr. NAYLOR asked the Minister of Transport whether, in view of the pressure upon hospital accommodation and treatment caused by the number of motoring accidents, he would consider the desirability of obtaining power to make grants from the Road Fund for the purpose of enabling such hospitals to meet the extra costs so incurred.—Colonel W. ASHLEY replied: I do not think that contributions of the nature suggested by the hon. Member could properly be made from the Road Fund, in view of the purposes for which that Fund was instituted.

MONDAY, DEC. 12TH.

South American Meat and Foot-and-Mouth Disease.

Mr. CRAWFURD asked the Minister of Agriculture whether, seeing that the chief veterinary surgeon of the Ministry of Agriculture had been in South America since last April investigating the whole system of dealing with the export of beasts to this country, and that it was now proposed that the Parliamentary Secretary to the Ministry should now join him there, why it was necessary for the Parliamentary Secretary to go to South America instead of the chief veterinary surgeon being brought back to report; whether he could state the nature of the negotiations the Parliamentary Secretary was to conclude with the South American authorities; how long he would be absent; and what was the estimated cost of his visit.—Mr. GUINNESS replied: In March the Ministry asked three of the Governments of the

countries in South America which export meat to this country to accept certain proposals which were designed to prevent the introduction of the virus of foot-and-mouth disease into Great Britain. With the consent of these Governments, Mr. Frood, a senior veterinary inspector of the Ministry (not the chief veterinary officer) was sent to South America more fully to explain these proposals to the Governments concerned, and to collaborate with them in adapting them to local conditions. Mr. Frood has been given every facility to study the disease position, and reports that he has reason to believe that the Governments of the South American countries concerned will find a way to give effect to the Ministry's suggestions. The Parliamentary Secretary, who is going on a pleasure cruise to Rio de Janeiro, will extend his voyage to confer with representatives of the Argentine and Uruguayan Governments and Mr. Frood, in the hope of completing the negotiations in relation to measures for the control of animal diseases which these countries propose to adopt with a view to removing risk of transmission of foot-and-mouth disease to this country. He will be absent for about seven weeks altogether. The estimated cost to the Ministry is £50.

Dr. VERNON DAVIES asked if any meat contaminated with foot-and-mouth disease had been brought in from South America at any time?—Mr. GUINNESS: We have no evidence of that.

Medical Officers of Health.

Dr. VERNON DAVIES asked the Minister of Health the number of urban district authorities in England and Wales with full-time medical officers of health.—Sir KINGSLEY WOOD replied: There are 118 non-county boroughs and 182 urban districts in England and Wales with full-time medical officers of health.

Grants to Voluntary Hospitals.

Mr. THOMAS WILLIAMS asked the Minister of Health if he was aware of the great deficiency in the number of beds in the voluntary hospitals of Great Britain; that this deficiency was largely due to lack of funds; and would he consider the advisability of making grants towards capital expenditure in approved cases on the lines indicated in the Onslow Report.—Sir KINGSLEY WOOD (Parliamentary Secretary) to the Ministry of Health, replied: My right hon. friend is glad to say that the deficiency in beds reported by the Voluntary Hospitals Commission has been materially reduced since their survey in 1924. In view of the financial position of the country, my right hon. friend did not at that time feel justified in recommending a grant from public funds in aid of capital expenditure, and the progress made from purely voluntary sources since that date has been so encouraging that he sees no ground for considering the question again.

Imperial Research Grants.

Mr. ORMSBY-GORE (Under Secretary for the Colonies), in reply to Mr. BLUNDELL, stated that in making grants for scientific research the Empire Marketing Board aimed at supporting schemes which promised to benefit either the Empire as a whole or, at any rate, more than one part of it. An apportionment of expenditure must to a large extent be arbitrary in the field of scientific research and economic investigation. The principal grants made or approved by the Board during the first 18 months of its operation included: £50,000 to the Australian Government for the establishment in Northern Australia of a Tropical Research Station; £9000 to the Liverpool School of Tropical Medicine for research in metazoan immunity; £1500 to the Department of Scientific and Industrial Research for research into the preservation and transport of fish; and £1000 for the transport of Irish Free State butter; £20,000 to the Medical Research Council for research work at the Lister Institute on the vitamin content of fruit, vegetables, and dairy produce; and £6000 to the Rowett Research Institute, Aberdeen, for research into the physiological and pathological conditions associated with certain rationed and specialised diets, with special reference to Kenya native tribes.

Medical Tests of Civil Service Candidates.

Mr. HORE-BELISHA asked the Secretary to the Treasury whether it was the practice of the Civil Service for medical tests of candidates to be made subsequent to their passing examinations for Government appointments; and whether, seeing that a number of successful candidates, who had spent money and time in preparation for these examinations, were disqualified for selection owing to failure to pass the medical tests, he would consider the possibility of making arrangements for candidates to be medically examined before they embarked on their preparation for the educational examinations.—Mr. A. M. SAMUEL replied: It is not the practice of the Civil Service Commissioners to examine the physical qualifications of persons who apply for admission to Civil Service examinations. Their physical eligibility for appointment is investigated in the event of their success. The number of candidates unsuccessful at an examination is normally much greater than the number of those who ... successful. The medical examination of all applica... would put the majority to unnecessary expense in paym... of medical examiner's fees, and would involve an expens... and unprofitable addition to the work of the Civil Serv... Commission. The Commissioners issue a memorand... for the guidance of intending candidates, setting out physi... qualifications of importance, and recommending intend... candidates, who are in doubt as to their eligibility, to ... examined by their own medical advisers before they be... preparation for a competition.

Definition of Miners' Nystagmus.

Sir RICHARD LUCE asked the Home Secretary whet... any conclusion had yet been come to in the matter ... establishing a more satisfactory definition of min... nystagmus; and whether he was aware that the pres... definition was differently interpreted by different ophthalm... surgeons and made it difficult for the medical referees ... give equitable decisions in many cases.—Sir W. JOYNS... HICKS replied: I fully realise the unsatisfactoriness of ... present position, but the matter is one of very considera... difficulty, and I have found it necessary to refer again ... the Medical Research Council for further advice on cert... points. I regret, therefore, it is not yet possible to co... to a final decision.

TUESDAY, DEC. 13TH.

Infection from Discharged Sanatorium Patients.

Mr. HORE-BELISHA asked the Minister of Health whet... his department had any scheme under consideration ... prevent the spread of infection of tuberculosis by dischar... sanatorium patients.—Sir KINGSLEY WOOD replied: It i... the duty of the local medical officer of health under ... Tuberculosis Regulations to take such steps as are necess... or desirable to prevent the spread of infection in every ... of tuberculosis which is notified to him, and those pati... who receive sanatorium treatment are instructed in ... precautions necessary to avoid the risk of infecting ot... persons.

Mr. HORE-BELISHA asked if Sir Kingsley Wood ... aware that it was customary for ex-sanatorium patient... be sent back in a very bad condition, and that they develo... the disease again and spread it?—Sir KINGSLEY WOOD s... that one could not dispose of the matter in that way. ... a number of cases these unfortunate people returned ho... of their own desire, or sometimes at the request of t... relatives. It was very difficult indeed to deal with such ca...

Dr. VERNON DAVIES asked if Sir Kingsley Wood ... satisfied that the local authorities were doing all in t... power to deal with these cases.—Sir KINGSLEY WOOD: ... I am never satisfied in these matters.

After-care of Tuberculous Patients.

Mr. HORE-BELISHA asked the Minister of Health w... percentage of tuberculous cases, discharged after treatm... from sanatoria, died from tuberculosis within five year... their discharge, and whether his department had u... consideration any schemes for the after-care of patients ... had been treated in sanatoria for tuberculosis.—Sir KINGS... WOOD replied: My right hon. friend regrets that ... information asked for in the first part of the question is ... available. As regard the second part, local authorities ... empowered under the Public Health (Tuberculosis) ... 1921, to make arrangements for the after-care of per... who have suffered from tuberculosis, and many ... authorities have made arrangements of this kind.

Mr. HORE-BELISHA asked if Sir Kingsley Wood was a... that his department did not appear to keep any of ... really valuable statistics relating to this illness, and i... would take steps to see that more accurate informa... was collected so that it might be available.—Sir KINGS... WOOD replied that the hon. Member was under a misap... hension. He would be glad to show him the statistics ... department had, and explain to him the many steps ... they were taking in the matter.

HOSPITAL ASSESSMENTS.—Under the revalua... just completed in virtue of the new Rating and Valua... Act, the assessments to local rates of the Brighton Hos... have been greatly increased. That of the Royal Su... County has been raised from £64 to £3375; of the Childr... Hospital from £48 to £1144; of the Women's Hos... from £96 to £490; of the Throat and Ear Hospital from ... to £450; of the Eye Hospital from £24 to £300. Hith... hospitals have usually been arbitrarily assessed on a ... scale, but the new Act is designed to secure all-r... uniformity. The powers of the Minister of Health u... the measure are, however, so extensive that it is beli... to be within his competence to authorise the special as... ment of hospitals and other charitable institutions.

Medical News.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—At e Final Fellowship Examination, held from Nov. 17th to ec. 1st, for which 114 candidates presented themselves, candidates were approved. Six candidates, J. C. B. len (St. Bart.'s), J. T. Fathi (London), J. Gore (London), L. Holt (Manchester), H. J. Seddon (St. Bart.'s), and M. Walker (Univ. Coll.), although successful at the amination, are not eligible for their diploma on account age. The following are the names and medical schools the successful candidates :—

J. P. Ainslie, Melbourne and Guy's ; F. C. Alton, St. Thomas's and Guy's ; E. T. Bailey, Middlesex ; B. Biggar, St. Bart.'s and Guy's ; P. D. Braddon, Sydney and St. Bart.'s ; W. H. Bremner, Otago and Guy's ; R. Broomhead, Leeds and St. Bart.'s ; R. K. Debenham, Cambridge and London ; A. A. Digges la Touche, Cambridge and Leeds ; S. W. Drinkwater, Manchester ; A. S. El-Katib, Cairo and St. Thomas's ; D. J. Evans, Birmingham and St. Bart.'s ; A. W. Fawcett, Edinburgh, Sheffield, and Guy's ; J. Fitzsimons, Otago and Guy's ; F. N. Foster, Leeds and Guy's ; E. A. Freeman, St. Bart.'s ; A. T. Fripp, Oxford and Guy's ; W. D. Galloway, Cambridge and Guy's ; W. H. George, Cardiff and London ; J. F. Hackwood, St. Thomas's ; C. H. Hembrow, Melbourne and London ; J. H. F. Jayasuriya, Ceylon and St. Bart.'s ; B. G. Johnston, Adelaide and London ; E. S. J. King, Melbourne and Middlesex ; C. H. G. Macafee, Belfast ; J. McFadzean, Glasgow and London ; S. M. Milner, Cambridge, Manchester, and St. Bart.'s ; E. D. Moir, St. Bart.'s ; W. M. Robb, Edinburgh and St. Bart.'s ; J. E. Schofield, Sheffield ; N. A. Sprott, Oxford and St. Thomas's ; and J. M. Weddell, Cambridge and St. Bart.'s.

Diplomas of Member were conferred upon the following :— . S. Davies, Oxford and Guy's ; C. R. Greene, Oxford and Westminster ; and Alison R. Kerridge, Royal Free.

licences in Dental Surgery were conferred upon the owing 46 candidates :—

C. Allen, T. J. Barnes, F. R. Bate, M. Bengis, M. G. Berry, V. G. Boyle, Josephine A. Bradley, D. C. Buckley, T. M. Calhaem, R. Catchpole, H. E. S. Collingwood, N. H. Cove, Mary P. Davies, F. W. K. Duncan, S. Edwards, G. A. Evans, E. H. Fenton, L. M. Garrett, A. J. K. Geere, J. W. Gilbert, H. Gordon, E. T. B. Graham-Scott, Tatiana P. Guercken, F. E. D. Hallon, L. J. Haworth, A. H. Herbert, H. Herzenberg, C. Himmelhoch, W. Holgate, G. K. Lacey, B. F. Mahony, C. F. L. Purslow, S. A. Quarterman, N. L. Salton, H. T. E. Sly, E. C. Smith, H. W. Spreadbury, C. N. Talmadge, G. G. Thwaits, C. A. E. Tomes, P. S. Turner, G. N. S. Weller, D. R. A. Wilcox, J. E. Willett, R. G. Woodward, and L. A. Wyborn.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS GLASGOW.—At the monthly meeting of the Faculty, on Dec. 5th, the following were admitted (after examion) as Fellows : Andrew Naismith Fergus, Shaikh . Faruki, and James Edwin Stanley Lee. The Macewen al, presented to the Faculty by Mr. J. A. C. Macewen, emory of his father, the late Sir William Macewen, was ded to William C. McLaren, the most distinguished nt in surgery of the year who had passed the examina- of the Scottish Conjoint Board, and who had obtained linical instruction in surgery in Glasgow.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.— following are the Council and office-bearers for the ng year :—President, Dr. Robert A. Fleming ; Vicedent, Dr. George M. Robertson ; Council, Dr. G. Lovell nd, Dr. Robert Thin, Dr. John Orr, Dr. William yce, and Dr. Edwin Matthew ; treasurer, Sir Norman er ; secretary and registrar, Dr. George Gibson ; rary librarian, Dr. Robert Thin ; curator of the labora- Sir Robert Philip ; representative of the General cal Council, Dr. William Russell : superintendent of aboratory, Lieut.-Colonel McKendrick ; librarian, Mr. . Graham.

ENCEPHALITIS AFTER VACCINATION IN HOLLAND.— he request of the Minister of Labour the President of Dutch Public Health Council has formed a committee vestigate the occurrence of the nervous sequelæ of nation to which we again drew attention last week LANCET, Dec. 10th, p. 1249). According to the *erlandsch Tijdschrift voor Geneeskunde* of Dec. 10th, the mittee consists of Dr. N. M. Josephus Jitta (President), H. Aldershoff, Dr. J. P. Bijl, Prof. L. Booman, Dr. van Bouwdijk Bastiaanse, Dr. H. S. Frenkel, Prof. n Logbem, Dr. J. T. Terburgh, and Dr. A. J. Vitringa. subcommittees have been formed to discuss the ing aspects of the question : (1) ætiology, pathology, reatment ; (2) epidemiology and organisation of proxis ; (3) the characters and varieties of vaccine lymph. Public Health Council invites the Dutch medical sion to help the committee by supplying medical s of health with full details of any cases occurring in practice.

Dr. William Henry Davison has been appointed coroner for the City of Birmingham.

ROYAL SOCIETY OF MEDICINE.—The Society's house will be closed for Christmas from Friday, Dec. 23rd to Tuesday, Dec. 27th, inclusive.

HOSPITAL SAVING ASSOCIATION.—Lord Cave, the Lord Chancellor, presided recently at the fifth annual general meeting of this Association, which was attended by some 2000 workers for the hospitals. There are now 351,000 members, an increase of 84,794 in the last 12 months, a number estimated at about 12 per cent. of the hospital population of Greater London. The total of wage-earners' contributions, based on a weekly payment of threepence per head, was £179,759, as against £128,762 in 1926. Payments for hospital services to members have risen from £83,926 last year to £127,196, and during the Association's year, which ended on July 31st, 99,754 contributors and their dependants were treated at voluntary hospitals. At the meeting speeches were made, among others, by "a business girl," a policeman, and a tramwayman.

EPSOMIAN CLUB DINNER.—The annual meeting and dinner of the Old Epsomian Club, which was held at the Trocadero, London, on Dec. 8th, was regarded as the club's jubilee, for it was the fiftieth meeting since Epsomians first dined together at the Cannon-street Hotel on July 13th, 1868, prior to the inauguration of the Propert Memorial Fund. The chair was taken by the new President of the club, Sir Cecil Armitage, lately Governor of Gambia and well known as an African explorer, who spoke of the wonderful opening for young medical men in West Africa. He related some of his adventures in the Colonial Medical Service, saying that the longer he remained in West Africa the more he became a sort of fetish to the natives. The headmaster, Mr. A. C. Powell, in responding to the toast "Floreat Epsomia," recounted the academic and athletic progress of the past year : 64 boys entered for the school certificate, of whom 59 obtained it, and he regarded the Rugby XV. as equal to that of any public school in the country. He remarked on the steady shift in the age-grouping of the school since the entrance age had been raised from 8 to 12 years. In 1922, out of 319 boys, 234 were of public-school age ; this year, out of 389 boys, 329 are of public-school age ; and by 1930 no doubt the number would have risen to 400. He was glad to welcome at the dinner their grand old man, Mr. Smith Pearce, a former headmaster, and from the present school the head prefect and the captain of football. Dr. H. F. Ealand proposed "The Guests" in a very humorous way, and Mr. Ormsby-Gore, M.P., Parliamentary Under Secretary for the Colonies, responded. He paid a high tribute to the medical men who go overseas and carry there the public school tradition. In Africa, he said, we badly want men trained in veterinary as in medical science. Progress languished because biologists and entomologists with the necessary knowledge could not be found, and he appealed for a generous allotment of time to biology in the school curriculum. Mr. G. E. Pinchard proposed "The President," who, in replying, mentioned the presence of the veteran Dr. Beckingsale, one of the first boys to enter the school.

CANCER RESEARCH IN IRELAND.—The Council of the National Cancer Campaign (Ireland) has issued a statement on its objects and scope. The Council is made up of representatives of universities, the Royal Colleges, and scientific societies, together with nominees of the Royal City of Dublin Hospital and of the joint committee of the British Red Cross Society and the Order of St. John. Its aim is twofold—research and education. It is hoped to collate and analyse the results of different forms of treatment carried out in the several hospitals of Ireland. At the same time attention will be paid to the study of causes, and clinical work in this connexion can be carried out at any hospital, members of whose staff are willing to collaborate with the workers of the campaign. The experimental part of the research will, in the first instance, be carried on at 14, Upper Baggot-street, Dublin, under the direction of an expert director, and under the supervision of a member of the Council who has accepted the post of honorary director. But, as funds permit, it is hoped to assist workers in other laboratories. As regards education, it is the intention of the Council to attempt to awaken the public as to the danger of cancer to the community, to convince them of the need of research, and to teach them, as far as is possible, how to recognise the first signs of the disease. The success attained by a similar campaign against tuberculosis some 20 years ago encourages those engaged in the present campaign. In conclusion, it should be made clear that the campaign is neither in constitution nor finance connected with any hospital. It rents rooms, however, from the Royal City of Dublin Hospital, and in virtue of this tenancy the governors of the hospital have a small representation on the Council of the campaign.

PANEL PATIENTS IN LIVERPOOL.—At the annual meeting of the Liverpool Insurance Committee held in Liverpool on Dec. 9th, it was stated that the insured population of Liverpool numbered 327,000, as compared with 232,000 in 1912, an increase of 41 per cent. Last year nearly £134,000 was paid to doctors in the city, the average number on doctors' lists being 1085. Prescriptions numbered over 1,250,000, costing £45,000.

A COAT OF ARMS FOR THE LONDON HOSPITAL.—Mr. W. J. Paulin, the treasurer, has defrayed the cost of a grant of arms for the hospital, and at last week's quarterly court it was reported that the grant had just been made by Herald's College. One of the charges on the shield consists of three silver feathers with golden quills, in allusion to the inaugural meeting in 1740 at the Feathers Tavern in Cheapside. The original home of the hospital was a house in Featherstone-street.

SIR DAVID DRUMMOND'S PORTRAIT.—On Dec. 1st, at Newcastle, Sir David Drummond was presented with his portrait in oils to commemorate the jubilee of his connexion with the College of Medicine of the University of Durham. Mr. R. G. E. Mortimer, chairman of the governors, who made the presentation, traced his career since 1876, when he was first appointed to lecture in therapeutics. After Prof. Thomas Beattie and Sir Robert Bolam had paid personal tributes to his work and teaching, Sir David Drummond invited the College to accept the portrait which is to be hung among those of others who have devoted their lives to the College. Sir Thomas Oliver gratefully accepted this gift saying that it would find an honoured place in the building. It is the work of Mr. R. G. Eaves.

MEDICO-LEGAL SOCIETY: ANNUAL DINNER.—The annual dinner was held at the Holborn Restaurant on Dec. 9th, Sir William Willcox, the President, in the chair. Earl Russell proposed the toast of Medicine and Law, which he described as the two greatest dangers of modern civilisation, and Colonel C. T. Samman, Warden of the Society of Apothecaries, and Sir Leonard Kershaw, Registrar of the Court of Criminal Appeal, responded. Mr. Justice McCardie proposed the health of the Medico-Legal Society, which was, he said, in its twenty-sixth year, and in the full tide of successful achievement. It would be deplorable if in the future there was any feeling of antagonism between the law and medicine. Two questions might lead to such antagonism, the first being that of insanity. He did not believe in a law which was unprogressive; he did not think that the social and scientific philosophy of 1927 was the same as the social and scientific philosophy of 1843. But when insanity was discussed certain broad features were sometimes overlooked. Writers in the press, for instance, always seemed to treat insanity from the point of view of murder, but the principle touched questions of theft, forgery, assault, and other lesser offences. The second question at issue concerned medical security, and here again he begged for a broad view. The doctor cried "Health! health! Let us break down the legal obstacles which prevent it." But there was another standpoint. He himself would say: "Truth! truth! Open the shutters and let in the light of truth"; for the principle of truth was fundamental to criminal justice, and justice, as had been said, was the great interest of man upon earth. The test of this matter must be the test of utility—what was the greatest good of the greatest number. If this test was applied the problems were not so easy as they seemed, and it was of great importance to understand the outlook of the other side. The traditions of a profession were perhaps greater than any other traditions, and the Medico-Legal Society was engaged not only in the search for truth, but in strengthening bonds between two professions with the same ideals of public good and the same tradition of public service. The President, after speaking of the invaluable work done by his predecessor, Lord Justice Atkin, who for seven years had presided over the Society, spoke of the various ways in which its meetings were useful. When called upon to give evidence, he said, the doctor should strive not to be an advocate, but an honest witness. Medical witnesses often appeared biased because they could not say what they liked, but had to answer questions. Although the practice of forensic medicine was limited in England, the people in this country were at the heart of a great empire, and he would like to see a central institute in England for the teaching and investigation of this branch of science. The President concluded by speaking of the valuable services of Sir Walter Schröder, Mr. Ernest Goddard, Sir Bernard Spilsbury, and others who held office in the Society. Dr. F. G. Crookshank wittily proposed the health of the guests, to which responses were made by Sir John Anderson, Permanent Under Secretary to the Home Office, and Mr. Herbert Carson, President of the Medical Society of London.

DISEASES OF THE NERVOUS SYSTEM.—A course of lectures on this subject will be given at the National Hospital, Queen-square, London, W.C., from Jan. 30th to March 23rd. Other courses will also be available at the hospital, and particulars may be had from the Dean.

DONATIONS AND BEQUESTS.—Mr. John Wallace Taylor, of Sunderland, bequeathed a considerable sum of money to charity, including £500 each to the Sunderland Royal Infirmary and the National Children's Home and Orphanage, £250 each to the Sunderland Children's Hospital, the Sunderland Orphan Asylum, and Dr. Barnardo's Homes.—Mr. James Gould, of Parkhurst, Brighton, who left £83,202, directed that after payment of certain annuities the reserve of his property, amounting to about £30,000, be divided between five institutions, including the South Wimbledon Cottage Hospital, North Wimbledon Cottage Hospital, and the Royal Sussex County Hospital.—Mr. George Holloway, of The Prospect, Aylestone Hill, Hereford, left, among other bequests, on the death of his wife, £500 to the Hereford General Hospital, £500 to the Freemasons' Hospital, Fulham-road, £50 to the Hereford Eye Hospital, £50 to the Hereford Dispensary, and £50 to the Gwynne James Maternity Home.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.
TUESDAY, Dec. 20th.—5.30 P.M., GENERAL MEETING OF FELLOWS. Ballot for election to the Fellowship. The Library will be open until 10 P.M.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, W.
MONDAY, Dec. 19th.—10 A.M., Dr. Dowling: Skin Department. 11 A.M., Mr. Tyrrell Gray: Surgical Ward. 2 P.M., Dr. Trevor Davies: Gynæcological Department.
TUESDAY.—2 P.M., Dr. Shaw: Medical Out-patients. 2 P.M., Mr. Sinclair: Surgical Out-patients.
WEDNESDAY.—10 A.M., Dr. Burnford: Medical Ward. 2.30 P.M., Mr. Donald Armour: Surgical Wards.
THURSDAY.—10 A.M., Dr. Grainger Stewart: Neurological Department. 2 P.M., Mr. MacDonald: Genito-urinary Department. 2 P.M., Mr. Bishop Harman: Eye Department.
FRIDAY.—10 A.M., Dr. Pritchard: Special Medical Treatment Clinic. 2 P.M., Mr. Vlasto: Throat, Nose, and Ear Department.
Medical and Surgical Out-patients, Operations, Special Departments, daily, 10 A.M. to 5 P.M., Saturday, 10 A.M. to 1 P.M.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION, St. James's Hospital, Ouseley-road, Balham.
WEDNESDAY, Dec. 21st.—4 P.M., Dr. Richard W. Gilmour: The Certification of Mental Patients.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.
MONDAY, Dec. 19th.—2.30 P.M. to 5 P.M., Medical, Surgical, and Gynæcological Clinics. Operations.
TUESDAY.—2.30 P.M. to 5 P.M., Medical, Surgical, Throat, Nose, and Ear Clinics. Operations.
WEDNESDAY.—2.30 P.M. to 5 P.M., Medical, Skin, and Eye Clinics. Operations.
THURSDAY.—11.30 A.M., Dental Clinic. 2.30 P.M. to 5 P.M., Medical, Surgical, and Ear, Nose, and Throat Clinics. Operations.
FRIDAY.—10.30 A.M., Throat, Nose, and Ear Clinics. 2.30 P.M. to 5 P.M., Surgical, Medical, and Children's Diseases Clinics. Operations.

ROYAL NORTHERN HOSPITAL, Holloway-road, N.
TUESDAY, Dec. 20th.—3.15 P.M., Mr. W. B. Gabriel: Chronic Intestinal Obstruction.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 49, Leicester-square, W.C.
TUESDAY, Dec. 20th.—5 P.M., Dr. J. A. Drake: Urticaria.

JAMES MACKENZIE INSTITUTE FOR CLINICAL RESEARCH, St. Andrews.
TUESDAY, Dec. 20th.—4 P.M., Prof. J. Marnoch: Some Pitfalls in the Diagnosis of Acute Abdominal Conditions. Discussion to be opened by Dr. J. Hunter and Dr. Paton.
FRIDAY.—4 P.M., Case Reading and Discussion, in which all medical practitioners are invited to take part.

Appointments.

BOND, HILDA M. P., M.B., B.S. Lond., has been appointed Out-patient Medical Officer to the Royal Northern Hospital, Holloway.

CRICHTON, J. W., M.B., Ch.B. Edin., Certifying Surgeon under the Factory and Workshop Acts for the Lydbrook District of the County of Gloucester.

KELMAN, J., M.B., Ch.B. St. And., Resident Medical Officer, Noranside Sanatorium, Forfar.

SMITH, H. G., M.D. Lond., D.P.H. Camb., Medical Officer of Health for Bournemouth.

SMYTH, M. J., B.Sc., M.Ch. N.U.I., F.R.C.S. Eng., Assistant Surgeon to the Hospital of St. John and St. Elizabeth, St. John's Wood.

Vacancies.

For further information refer to the advertisement columns.

Argyle and Bute District Memorial Hospital, Lochgilphead.—Asst. M.O. £300.

Barnsley, Beckett Hospital and Dispensary.—Sen. and Jun. H.S.'s. £220 and £140 respectively.

Bolton Infirmary and Dispensary.—H.S. £150.

Bootle Borough Hospital, Derby-road, near Liverpool.—Part-time M.O. £300 guineas.

Bootle County Borough.—Asst. Sch. M.O. £600.

Brighton, New Sussex Hospital for Women and Children.—Radiologist. £100.

Bury Infirmary.—Third H.S. At rate of £150.

Cardiff Royal Infirmary.—Hon. Surg. to Ear, Nose and Throat Department.

Chester Royal Infirmary.—Second Hon. Asst. P.

Coventry and Warwickshire Hospital.—Res. H.S. £125.

Derby, Derbyshire Royal Infirmary.—H.S. for Ear, Nose, and Throat Dept. £150.

Durham, Seaham Hall Sanatorium.—Med. Supt. £600.

East Sussex Administrative County.—County M.O.H. £1200.

Exeter, Wonford House Hospital.—Med. Supt.

Exminster, Devon Mental Hospital.—Jun. Asst. M.O. £300.

Grocers' Company.—Research Scholarships. £300.

Harefield, Middlesex County Tuberculosis Sanatorium.—Third Asst. Res. M.O. £400.

Hull Royal Infirmary.—Res. House Governor. £500.

Ipswich, East Suffolk and Ipswich Hospital.—H.S. £100. Also Cas. O. £150.

King's College Hospital, Denmark Hill, S.E.—Sen. Med. Reg.

Liverpool, David Lewis Northern Hospital.—Hon. Radiologist.

Liverpool Education Committee.—X Ray Specialist. 3 guineas per session.

Liverpool, Hospital for Consumption and Diseases of Chest.—Hon. Phys.

Liverpool, Royal Southern Hospital.—Hon. Anæsthetist.

London Temperance Hospital, Hampstead-road, N.W.—Cas. O. At rate of £120. H.P. At rate of £100. Med. Reg. 40gns.

Miller General Hospital for South-East London, Greenwich-road, S.E.—H.S. £125.

Nigeria.—Four M.O.'s. for Tsetse-fly Investigation. Each £660.

Nottingham General Hospital.—H.S. At rate of £150.

Plymouth, South Devon and East Cornwall Hospital.—Res. Surg. O. At rate of £100. Also H.S. At rate of £50.

Preston, Biddulph Grange Orthopædic Hospital.—Sen. H.S. £250.

Prince of Wales's General Hospital, Tottenham, N.—Hon. Anæsthetist.

Royal Army Medical Corps.—Limited number of Commissions.

Royal Free Hospital, Gray's Inn-road, W.C.—Sen. Clin. Assts.

St. Peter's Hospital for Stone, &c., Henrietta-street, Covent Garden, W.C.—Clin. Assts.

Stoke-on-Trent, North Staffordshire Royal Infirmary.—H.S. £150.

Willesden General Hospital, Harlesden-road, N.W.—H.S. At rate of £100.

The Chief Inspector of Factories announces vacancies for Certifying Factory Surgeons at Hoylake (Cheshire) and at Cannock (Staffs.).

Births, Marriages, and Deaths.

MARRIAGES.

TAYLOR—CAREY TAYLOR.—On Dec. 8th, at Christ Church, Lancaster-gate, Arthur Reginald Lister, M.C., F.R.C.S., to Margaret Kathleen, eldest daughter of the Rev. and Mrs. Carey Taylor, of The Rectory, Winchelsea, Sussex.

TINCKER—BATES.—On Dec. 8th, at St. Mary's Church, Martlesham, Suffolk, Dr. R. W. Holden Tincker, of Painswick, Gloucester, to Kathleen Aldrich, eldest daughter of the late Rev. E. Bates, and of Mrs. Bates, of Martlesham Hall, Suffolk.

DEATHS.

JACKSON.—On Dec. 5th, in Paris, Marshall Jackson, W.A.M.S.

MARTIN.—At West Villa, Akenside-terrace, Jesmond, on the 8th inst., Ellen Renfree, wife of William Martin, M.D. Service at Jesmond Parish Church, Monday, Dec. 12th, at noon, and at Jesmond Old Cemetery immediately following.

—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Comments, and Abstracts.

MEDICAL ASPECTS OF CONTRACEPTION.[1]

IN May, 1925, the National Council of Public Morals appointed a committee of 18 persons, for the most part doctors and divines, "to consider the ethical aspects of birth control from the view of Christian people." This committee drew up a report,[2] the main conclusions of which may with advantage be here set out.

The 1925 Mixed Committee's Conclusions.

1. "That for the Christian, spiritual reinforcements are available, where ordinary moral resources are insufficient; that such spiritual help can be relied upon by those united in Christian wedlock; and that the family is a Divine institution."

2. "The ideal method of birth control is self-control." "By this term we mean the complete abstinence from intercourse throughout those periods of marriage when, for one reason or another, conception is not desired." Referring to those who desire to keep their families within "workable limits," the report says of self-control: "Its feasibility in such cases—probably indeed in all cases—is, we believe, gravely underrated."

3. "The deliberate disconnexion by mechanical means of sexual satisfaction and its natural result opens the door to grave social perils, and a serious responsibility therefore lies upon the conscience of married people who adopt this practice." The grave "social evils" arise from the fact that "there is a close connexion which cannot be ignored between the problem of conception control and the problem raised by sexual promiscuity."

4. "Normally each couple should look forward to a family of four or five children at the least."

5. "The comparatively modern practice of conception control, and in particular the artificial methods used, call for a much fuller investigation than they have hitherto received from the medical, economic, and social point of view."

From the above conclusions it will be seen that the National Council of Public Morals is a body of a kind that is not disposed lightly to advocate birth control.

Shortly after the publication of the above report a medical committee was appointed by the National Council of Public Morals to report on the medical aspects of birth control. This book is that report. The medical committee consisted of 14 persons, of whom six had previously sat upon the committee which reported on the ethics of birth control. These were: Sir Arthur Newsholme and Mr. Charles Gibbs, Dr. C. J. Bond, Dr. A. K. Chalmers, Dr. Agnes Dunnet, and Dr. Letitia Fairfield. But Dr. Fairfield—who had signed a reservation to the ethical report to the effect that "We believe that the use of contraceptives is a frustration of God's design in nature and of the marital act, and as such is unjustifiable"—was unfortunately compelled to resign from the committee after six meetings owing to pressure of professional work.

Unlike certain other recent publications that have purported to expound medical views on contraception, this report contains much relevant and valuable evidence. In fact it is indisputably the most authoritative pronouncement upon the subject that has yet appeared. The committee has been at pains to collect statements and evidence from witnesses connected with four birth control centres with records of over 12,000 cases, from two American doctors who reported on the birth control movement in America and on the continent, and from Prof. F. A. Marshall, Mr. T. A. Webster, Lord Dawson of Penn, and Dr. Killick Millard, Dr. R. A. Gibbons, Dr. Binnie Dunlop, and Dr. Crichton Miller. The committee's conclusions are embodied in a report of 14 pages, which constitutes the first part of the book. The second and much longer part consists of the various statements and evidence submitted to the committee. We indicate here the chief medical conclusions which have been reached by the committee.

The Medical Committee's Conclusions.

1. "In the close relationship of married life, the effects of continued abstinence may be grave for persons of certain temperaments. Abstinence, while it is the obvious, and, from the ethical point of view, the ideal procedure, when it is desired that no children should be born, is impracticable for the majority of young married people."

The divergence of view as to the practicability of abstinence between this statement and that embodied in the ethical report illustrates the difference between the

[1] Medical Aspects of Contraception. By a medical committee. London: Martin Hopkinson and Co., Ltd. 1927. Pp. 183. 10s. 6d.

[2] The Ethics of Birth Control. Macmillan and Co., Ltd. 1925.

theological and the medical approach to the question of abstinence.

2. "Coitus interruptus is practised by a very large number. The principal objection is that incomplete gratification sometimes produces well-authenticated psychological illnesses in both participants, as well as pain, tenderness, irritability of temper, hysteria, and impotence."

3. "There is strictly no safe period, as conception may occur at any stage of the menstrual cycle. Experience shows, however, that there is a time in which the chances of conception are materially diminished—namely, from about the eighteenth day after the first day of the preceding period to the end of the cycle." It is to be noted that this view seriously conflicts with that of the ethical committee which expressed itself to the effect that: ". . . there is a large body of evidence that, as an alternative to complete abstinence over long periods, strict limitation of sexual relations to *four or five days* in the middle of the intermenstrual period, does diminish the risk of pregnancy." The large body of evidence was not specified. But whatever it was, it militates in the most unequivocal manner with the evidence presented to this committee by Prof. Marshall.

This evidence is based on the assumption that the human ovum and spermatozoon remain capable of fertilisation for similar lengths of time to those of the rabbit—namely, 4 and 30 hours respectively after discharge—and upon evidence that the usual moment for ovulation in the woman is from the fourteenth to the seventeenth day after the beginning of the menstrual discharge. This evidence, which is forthcoming from the observations of Dr. Wilfred Shaw, is of very great importance since, if true, it follows that the mid-menstrual period is the one in which the chances of fertilisation are incomparably greatest. Far from being a "safe" period, as taught by the Roman Catholic Church,[3] the mid-menstrual period would, par excellence, be the unsafe period.

4. In the opinion of the committee the best contraceptive method for women free from genital disease is a combination of a rubber occlusive diaphragm and a spermicide in a non-fatty vehicle which should be applied above and below the diaphragm. But to this view the important reservation is made that "it requires a medical practitioner to fit the appropriate size and to teach the woman to place it in position herself."

5. With regard to the effects of contraception on individual health, the report says: "With regard to the woman, evidence brought before us suggests that in cases in which, on medical grounds or on account of already large families, contraceptives are advisable, their use brings about an improvement in general health owing to freedom from anxiety as to the possibility of pregnancy, increased happiness in the home, better outlook, and greater affection for the children."

6. Referring to how women can best be given advice on contraception, it is stated that: "Hospitals should be centres for advice and instruction on the subject. When a hospital has an obstetric and gynæcological department, this would be the most suitable place."

7. "The amount of scientific information as to the efficiency of contraceptives based on statistical data is very small. On this subject exact information could only be based on the collection of scientific data extending over a period of years."

This report should be read by all interested in the subject. It can safely be recommended as the best-grounded presentation of the medical aspects of birth control that has yet been made.

Those who are anxious to assist this committee in the process of investigation which it feels to be so necessary, can best do so by collaborating with a Birth Control Investigations Committee, the aims of which were explained in a letter from Sir Humphry Rolleston which appeared in our issue of Oct. 29th. The secretary of this committee is the Hon. Mrs. Marjorie Farrer, 41B, Clanricarde-gardens, London, W. 2, who will welcome communications from members of the medical profession.

[3] "When all other deterrents fail, it is lawful, according to the teaching of the Church, for married people to limit intercourse to the mid-menstrual period, when, although conception may occur, it is less likely to occur than at other times" (Birth Control. By Halliday Sutherland. Harding and Co. P. 153).

MARSHALL'S LYSOL.

THIS preparation is manufactured by Lysol, Ltd., Raynes Park, S.W. 20, to the original formula of Schulke and Mayr, A.G., Hamburg, and is now to be known by the registered trade mark "Marshol." Medical men are asked to specify Marshol on their prescriptions instead of just Lysol. Schulke and Mayr, A.G., Hamburg, is an associated company of Lysol, Ltd., and Marshol will continue to identify the original Lysol well known for over 30 years.

A SPANISH MEDICAL DIRECTORY.

THERE are many signs of a revival of scientific medicin in Spain. We have lately received a large volume of 143 pages entitled "Anuario Médico de España," publishe with distinguished collaboration under the editorship o Señor Federico Bonet, pharmacist, in Madrid (Av. Cond Peñalver, 21 y 23). This is the first issue of a new director containing lists of medical men, dentists, veterinary surgeons chemists, colleges, faculties and schools, hospitals, clinics sanatoriums, laboratories, a summary of Spanish legislatio concerning medicine, and notes on medical history. Particu larly interesting is a long alphabetical list of pharmaceutica proprietary specialties registered in Spain, with the date an number of the registration, and sometimes with the name slightly altered and unfamiliar. It is inevitable that ther should be a few errors in a new work of this magnitude, bu the undertaking deserves every praise as it will serve most useful purpose in Spain and throughout the worl generally.

DIPLOMAS IN MEDICAL RADIOLOGY AND ELECTROLOGY.

IN our recent Students' Guide no mention appeared the Diploma in Medical Radiology and Electrology grante by the University of Liverpool. Candidates before admissio to the examination for this diploma must possess a registrab qualification, approved by the University in medicine an surgery, and must have attended courses of instruction i (*a*) physics (two terms), (*b*) (i) radiology, and (ii) electrolog during six months in the X ray and electrotherapeut departments of a hospital or hospitals. An examination held in March each year, the subjects being (*a*) physic (*b*) radiology and electrology. Examination in either pa may be taken separately. Fees: tuition, £24 5*s*; examin tion and diploma, £6 5*s*. These courses commence durir the first week in October. Application should be made t the Dean, Faculty of Medicine, the University of Liverpoo

SCOTT'S PATENT MALT CHARCOAL BISCUITS.

WE have received from Messrs. R. M. Scott, of Ipswic manufacturers of wholemeal biscuits, a sample of the Malt Charcoal Biscuits which, in flavour, resemble a reaso ably sweet biscuit, while there is an entire absence of gritt ness. The biscuits should prove useful in gastric conditio where indicated; they are conveniently packed in t boxes, thus conserving their natural crispness. They a intended to be eaten after meals.

A QUESTION OF SUPERANNUATION.

Dr. J. T. Macnamara, medical officer and vaccinator the Ladywell Institution, Lewisham, has addressed a lett to the Ministry of Health asking for a public inquiry in the administration of all the institutions controlled by t Bermondsey Board of Guardians. He bases his deman upon a contention that his own office has been constitut legally as an appointment for life, so that any resolutio determining the appointments of all over 65 years of a are illegal as far as he is concerned. In particular referen to his own institution, he points out that a surprise vi from a representative of the Ministry of Health reveal a very satisfactory state of affairs, and he submits that t replacing of a whole-time medical officer will be uneconomic and not in the interests of the public service, referrin presumably, to what he believes to be an intention of Board.

SPLENDID ISOLATION.

To the Editor of THE LANCET.

SIR,—There are two country practices which are almo accurately separated by a main road for two miles of length, each doctor living four miles from the bounda These two practices have been worked side by side, under t same board of guardians, by the same two men, for ov 30 years, and last year each of them told me that, far as he knew, he had never seen the other. Is this record? I am, Sir, yours faithfully,

Clevedon, Dec. 9th, 1927. R. L. WASON.

"MULTIWIDTH" PLASTER.

IN order to overcome the inconvenience of carryi several spools of adhesive plaster in a medical equipme case, and the trouble of cutting a wide strip into narr widths, Messrs. Fassett and Johnson, Ltd., of 86, Clerkenwe road, London, E.C., have devised a single spool measuri 3 in. in width which carries Mead's rubber adhesive plast or Seabury's oxide of zinc plaster cut into widths of ½, ¾, and 1½ in. Any of these widths can be rolled off the sp as required without disturbing the others. Each sp contains 5 yards, so that the total area of plaster contain on a spool is 3 in. by 5 yd. The saving of space as well convenience of handling are features of this new plast packing.

A Discourse

ON

EHRLICH'S "CHEMOTHERAPY,"

AND ON CERTAIN GENERAL PRINCIPLES WHICH REQUIRE TO BE BROUGHT INTO APPLICATION IN ALL TREATMENT OF BACTERIAL DISEASE.

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EHRLICH, who was the originator of the therapeutic ethod which is to supply a principal theme of this iscourse, elected to call this method of his devising—iemotherapy. That appellation must be judged nfortunate. For it runs counter to all principles f sound nomenclature to transfer to a species an ppellation which properly belongs to a genus (and ie name chemotherapy belongs, of course, by right,) every form of chemical treatment). A delinquency nomenclature such as this can be retrieved only y adding to the appellation given a full complement defining and interpreting clauses.

Here the following complement of glosses must e supplied :—

1. Chemotherapy, in Ehrlich's sense, signifies aggressve chemical action exerted on a biological element hich is parasitic upon the organism. In other words, iemotherapy, in Ehrlich's sense, means for all rdinary purposes: *specific parasitocidal chemoerapy.*

2. Further, chemotherapy, as understood by Ehrlich, gnifies chemical action, which, while attacking rasitic elements, leaves the organism fundamentally iaffected. (In other words, chemotherapy, in rlich's sense, would, expressed in his terminology, : *specific parasitocidal, predominantly monotropic emotherapy*).

3. Lastly, the chemotherapy Ehrlich had in view is treatment by artificially manufactured chemical oducts, as distinguished from products elaborated the animal organism in response to infection or ccination. In conformity with this, Ehrlich's emotherapy would be properly described as: *ecific parasitocidal, predominantly monotropic armacotherapy.* Let me, in the sequel, use the m *pharmacotherapy* where Ehrlich would have oken of *chemotherapy.*

We may now turn from the definition of the method the conceptions which gave it birth. The fundaental principle of pharmacotherapy is that expressed Ehrlich's dictum: that every substance which erts any chemical action upon a body cell or tissue, parasitic organism, does so by virtue of its anchor- itself—i.e., by laying chemical hold upon the ment in question. That is the doctrine incorated in Ehrlich's formula: *corpora non agunt nisi ita.* The accessory ideas which afterwards grouped mselves round this foundational axiom were pounded by their author through the vehicle of hnical terms. In choosing technical terms as the icle for his ideas, Ehrlich was, as reflection will w us, acting under happy inspiration. Let us, this connexion, note that it has been pregnantly l of words in general—and this holds in a very cial sense of technical terms—that they are in lity "agents of universal instruction." Further, rds of all kinds, and "terms of art" more than furnish a *memoria technica*—one which keeps nind things that would, if the words were not there retain them, escape from the memory. The in apophthegm recounts it well: *Nomina si cis, perit et cognitio rerum.*

n view of what has just been said, it will be seen t we may fittingly begin by studying the vocabulary which Ehrlich has given expression to his conceptions on pharmacotherapy. In setting out that terminology it will be convenient to place in each case, the one over against the other, those terms that are antonyms, and to print in italics such words that are either lacking in precision or would be prone to carry into the mind erroneous implications.

EHRLICH'S APPARATUS OF TECHNICAL TERMS.

Receptor.	Haptophore (Hapten).
Mono-tropic.	Poly-tropic.
Organo-tropic.	*Parasito-tropic.*
(For example: neuro- hæmato- leucocyto- and erythrocyto-tropic.)	(For example: bacterio- staphylo- pneumo- or trypanosomato- tropic.)
Dosis Tolerata.	*Dosis Efficax.*
Therapia magna sterilisans.	*Therapia sterilisans fractionata.*

Cribrum therapeuticum.

We may now, though this will involve rehearsing some very familiar material, proceed to pass in review this syllabus of technical terms. The expression *receptor*, as employed by Ehrlich, designates the atomic group in the body cell, tissue, or parasitic organism upon which the chemical agent in question anchors itself. The expression *haptophore* (which is the antonym to receptor) denotes the atomic group by which the chemical agent in question anchors itself to (the Greek says *grasps*) the receptor. The suffix *-tropic* applied to a chemical agent indicates that the substance in question combines with (the Greek says *turns toward*) the kind of cell, tissue, or parasite which is designated by the verbal stem to which the suffix is articulated. The classification into *parasito-* and *organo-* (or as we might better say instead of organo-, *histo-*) tropic is prone to mislead, inasmuch as it might erroneously suggest to the mind that the chemical affinities here in question are mutually exclusive, and that a chemical agent which is *parasito-tropic* cannot at one and the same time be *organo-tropic.* This particular blemish may, however, be deemed retrieved by Ehrlich having taken up into his vocabulary the expressions *mono-* and *poly-tropic* (these were coined by me in the mould supplied by Ehrlich), which definitely enunciate that an agent may combine either exclusively with one kind of cell, tissue, or parasitic organism, or, as the case may be, with a number of different kinds of cell, tissue, parasitic organisms, or any combination of these. But what we really require to know about a *polytropic* drug (and practically all drugs are *polytropic*) is whether it combines preferentially with, let us say, the parasitic element, and, *faute de mieux*, with the tissues and cells of the host; or, vice versa, preferentially with the cells and tissues of the body and only *faute de mieux* with the parasite. This might perhaps be conveniently expressed by saying that what we want to know of a drug is whether it is *proterotropic* for the parasite and *hysterotropic* for cells and tissues of the body, or whether it is *proterotropic* for the host and *hysterotropic* for the parasitic organism.

Following on now in our table we come to the expressions *dosis tolerata* and *dosis efficax.* Upon the accurate determination of these a very great deal depends. For the doctrine of Ehrlich tells us that the value of a therapeutic agent depends upon the *dosis tolerata* being definitely larger than the *dosis efficax.* And that doctrine is clearly empty of content if in this therapeutic fractional coefficient $\left(\frac{dosis\ tolerata}{dosis\ efficax}\right)$ the terms which serve as numerator and denominator, are ambiguous. And *de facto* that is the position of things. That the term a *dosis tolerata* is a term of ambiguous meaning will be obvious when we consider that a *dosis tolerata* might mean on the one hand a dose which is *tolerated by the organism taken as a whole*, and on the other hand a dose which is *tolerated by the leucocytes.* Ehrlich, when he used the term, had in view, of course, the dose *tolerated by the body as a whole.* Further, he had in view not the, presumably smaller, quantum that can be adminis-

tered to the diseased, but that, presumably larger, quantum which can be given to healthy men or animals without killing or manifestly poisoning them. But a clinically tolerated dose as thus defined is in point of fact in many cases a dose which weakens or abolishes the antibacterial defence of the body by poisoning the leucocytes. Such a quantum is obviously quite improperly designated a *dosis tolerata*. It would be much better called either a *dosis inermans* (i.e., a disarming dose) or a *dosis destituens* (a dose which leaves the body destitute of leucocytic defence).

The practical importance of the distinction between that (generally larger) quantum of a chemical agent which can be clinically tolerated and that (generally smaller) quantum which can be tolerated by the leucocytes is of obvious practical significance. It is common sense that a quantum of a chemical agent which paralyses the leucocytic defence must when administered to an animal organism which is suffering from a bacterial infection or which is (I am thinking here of prophylactic inoculation) to be exposed to risk of such infection, must work for mischief.

We turn now to the consideration of the term *dosis efficax*. A moment's consideration will show that this expression also is ambiguous. It may mean, to begin with, either a *dosis omnimo sterilisans* (such a dose as would sterilise the entire body), or (and this would be the ordinary meaning of the term) a *dosis sanguini-sterilisans* (a quantum that would sterilise the blood). And again the term *dosis efficax* might mean a *dosis uno ictu efficax*, or a *dosis sæpius repetenda*. Or, finally, it might mean the grand total dose of the drug which is, given in divided doses, required for the achievement of a satisfactory result.

This brings us to the consideration of Ehrlich's therapeutic projects. The first of these, the *therapia magna sterilisans*—i.e., the project of sterilising the whole body by a *dosis uno icto efficax*—that is sterilising it once and for all by a single dose of a drug—was definitely relinquished by Ehrlich in the salvarsan treatment of syphilis, when practical experience of this disease had brought it home to him that the largest dose of his arsenical remedies which could be exhibited without fatal consequences, failed to extirpate syphilitic infection.

Coming now to the *therapia sterilisans fractionata*, let us note with respect to the attribute *fractionata*, that this quite fallaciously suggests to the mind that the therapeutic procedure here in question proceeds upon the same lines as the procedure of fractional sterilisation employed in bacteriological laboratories in the preparation of culture media which do not support high temperatures. The fractional sterilisation which comes in that case into application depends upon the principle that microbic spores, which an application of moderate heat fails to kill, grow out when that heat is withdrawn into forms susceptible of being killed by such moderate temperatures as were initially ineffective.

Now, nothing of the sort can be supposed to supervene in the case of syphilitic spirochætes or other microbes living parasitically in the body. Not only are these micro-organisms not converted during treatment into more vulnerable forms, but, as Ehrlich's own work and that of Morgenroth showed, parasitic microbes tend to become more resistant to whatever drug is administered.

By the establishment of this general law, Ehrlich, in point of fact, withdraws from his *therapia sterilisans fractionata* all that scientific countenance which his nomenclature had illegitimately procured for it. And we shall presently have to inquire whether there is, in point of fact, any other scientific defence that can be adduced in defence of this seemingly unwarranted therapeutic procedure.

Finally, a few words may be said about the therapeutic procedure which employs two pharmaco-chemical agents and attacks the original microbic population with the first, and then such residue of that population as may survive with the second agent. This therapeutic device was called by Ehrlich a *cribrum therapeuticum*, for it was, as seen in his mind's eye, a device in which the physician places in positio in the blood first a chemical barrier or grid so oriente as to intercept the bulk of the infecting microbes and after that a second chemical grid oriented s as to hold back any micro-organisms which migh succeed in getting past the first filter trap. As soo as we visualise this method of attack and meditat upon it, our mind sees that it can affect only microbe in the blood stream and the regions irrigated by thi and that it will leave quite unscathed those tha have already penetrated into the remote backwaters

With this we have completed our critical stud of Ehrlich's terminology, and there will have bee carried away from that critical analysis at least thi that the doctrine enunciated in those terms i inadequate and also in many respects erroneous Out first task must accordingly be to try to win ou way to a fuller and clearer comprehension of th problem which confronts the pharmacotherapist.

Reflection will show that we have here (and th same, of course, holds of immuno-therapy) not on but two separate problems. The one is a purel chemical problem; the other a problem in therapeuti engineering.

Let us consider, first, the one which is exclusivel chemical. The task of composing a pharmaco chemical bactericidal agent which shall be intra corporeally active is, as will be appreciated, infinitel more difficult than that of producing or finding a antiseptic of the ordinary kind. When a chemis is asked to provide the ordinary kind of antiseptic all he is asked to do is to find a chemical agent whic will destroy microbes, it being understood that th microbes shall be lying nude and exposed to chemica attack. When, on the other hand, a chemist is aske to produce a pharmaco-chemical bacterial agen which shall be intracorporeally active, there is require from him an agent which will kill this or that specie not only when it is lying nude, but also when it i enveloped in albuminous fluids and secretory fluid of all kinds. And there is further required of hin that he shall compose an agent which will ki microbes in the body without injuring physiologica elements which are either directly essential to lif or requisite for antimicrobic defence.

And the above does not constitute by any means full account of what is required of a pharmaco-chemica agent. Not only must such an agent be poisonou for microbes, and so far as possible non-poisonou for the organism, but it must also be rapid in actio so that it may complete its task before it is eliminate or rendered inactive.

The importance of this provision will be clear whe we consider that it has been ascertained with respec to optochin,[1] operating upon the pneumococcus i blood in vitro in the maximum dose admissible i treatment, and again with respect to neosalvarsan, operating upon the streptococcus under the sam conditions, that these drugs do not poison th microbes until they have been in action for a perio of many hours. And in this connexion there must b taken into account also the fact that in the bod pharmacotherapeutic agents are subject to rapi wastage. We know, to begin with, that the kidne and liver are continuously at work removing foreig elements from the blood, and we know, further with respect to bactericidal drugs, that unless the have been completely purged of their affinity fo albuminous substances, they are, when employed i the body, subject to a further important wastage b the fact that they tie themselves up to the albuminou elements of the blood and tissues.

Having realised how difficult it is for the chemis to produce (and, of course, we cannot reasonably expect nature to provide ready-made) effectiv pharmaco-chemical bactericidal agents, we may no turn to consider the further problem which confront the physician who has to bring such agents int application, not only (for that is a comparatively

[1] Moore and Chesney: Archives of Internal Medicine, 1917 xxi., 659.

[2] Colebrook, L.: Unpublished researches.

simple matter) upon microbes circulating in the blood, but also (and this is what is really difficult) upon microbes dispersed throughout the organism.

It is, in point of fact, a grave blot upon Ehrlich's wonderful work upon pharmacotherapy that he failed to realise why his projected *therapia magna sterilisans* in syphilis had come to nought. He, as we saw above, attributed this to his arsenical preparations having still, after all his efforts, retained considerable toxicity. Consideration of his now universally familiar therapeutic fractional coefficient $\left(\frac{dosis\ tolerata}{dosis\ efficax}\right)$ does not, however, elucidate the failure of the *therapia magna sterilisans*. For that formula quite fails to explain why a drug which is efficacious when applied to one part of an infecting microbic population, is ineffective with respect to another part of that same population.

Now, as will be shown, the real answer to this is that one part of the infective microbes are circulating in the blood or lie in regions to which there is ready access from the blood, while the other part lies in regions so physiologically remote that it might quite safely be postulated in connexion with treatment by arsenic, that even were 1000 times a lethal dose to be administered, no trace of that agent would ever penetrate there.

It will help us to realise that this is the true position of affairs if we consider for a moment the plan upon which the organism is constructed. The body is, in point of fact, constructed upon a plan of water-tight or almost water-tight compartments. Between the blood and the lymph is interposed the capillary endothelium which prevents all direct inter-penetration of fluids and permits only of interfusion by dialysis and restricted filtration. The lymph again is divided from what we may call the *secretory fluids* by secretory membranes. How rigidly such membranes divide off the mother liquor (the lymph) from the secretory product is seen when we contrast the composition of the lymph with that of (*a*) the cerebro-spinal fluid; (*b*) the synovial fluid of the joints, bursæ, and tendons; (*c*) the aqueous and vitreous humour; (*d*) the mucus which coats the surfaces of the mucous membranes; and (*e*) the secretions proper, such as the tears, the saliva, the milk, the bile, and the urine.

It will be manifest from the above that the fluids of the body can, from the point of view of their accessibility to therapeutic operations, be ranged under three categories. There is, to begin with, the blood which can be directly influenced by the injection of chemical agents; then the lymph which can normally (wounds are here excluded from consideration) be reached only indirectly through the medium of the blood; and, finally, the secretory fluids which can be reached only remotely through the medium of the lymph.

Before addressing ourselves to the problem as to how chemical agents (I use the comprehensive term because the problem we are engaged upon concerns immuno-chemical as well as pharmaco-chemical agents) can be brought into operation not only in the blood, but all over the body, we must seek to arrive at a clear conception as to what will happen when microbes obtain access, as the case may be, to the blood, the lymph, or the secretory fluids. And we shall do well to put to ourselves, in connexion with each category of fluid, the following three questions: *first:* Are microbes killed in this fluid by an onslaught of first intention? *Secondly:* Do such survivors as are left over after such onslaught make good their footing in the medium which has proved fatal to the majority? and *lastly:* How can such ensconced microbes subsequently combated?

We may begin by considering what happens when microbes obtain access to the blood stream. Here, except in the case where specially virulent microbes are in question, all, or at any rate a large proportion, are killed off by an onslaught of first intention, the sero-vulnerable microbes being destroyed by the torrent of bactericidal blood fluid which is brought to bear upon them, while the serophytic microbes (those which can draw nutriment from, and can accordingly grow out in the blood fluids) are, as soon as they get stranded in capillaries, phagocytosed and killed by the leucocytes. Further, when they are carried into the liver they are killed there after ingestion by endothelial cells.[3]

The microbes which survive this first onslaught make good their footing by rendering the blood apophylactic. They effect this (*a*) by absorbing agglutinating, opsonic, and bactericidal elements from the blood fluids, (*b*) by secreting toxins which either keep the leucocytes at bay or kill them.

Where there has been an incursion of large numbers of living microbes into the blood, and likewise where a massive dose of vaccine has been administered, the whole circulating blood may be brought down to a lower level of antibacterial, or, to speak in chemical terms, bacteriotropic potency—in other words, a general *negative phase* may be induced.

More frequently, however, the antibacterial potency of the blood will be reduced only in the immediate environment of the surviving microbes. These will, as a result of this, be lodged in non-bacteriotropic, or, as we may also call them, ecphylactic niduses. The formation of ecphylactic foci in infected tissues and organs will, as reflection will show, be dependent upon an arrest of the blood stream. So long as the circulation is maintained, the blood which has, by passing through the infected region, lost in anti-bacterial power will be continuously replaced by newly arriving antibacterially potent blood. When, however, the circulation is anywhere arrested, the blood will, by continued contact with the bacteria, become more and more poisoned and depleted in protective substances. And, *mutatis mutandis*, this will apply also when a portion of infected blood becomes converted into a clot, or when a quantum of non-coagulated blood is brought to a standstill by the blocking of a vessel by clot.

But intravascular clotting is very far from being the only event that will produce a local arrest of the circulation. Other physiological happenings can also bring about that result. We now know from Krogh's researches [4] that capillary loops are intermittently shut down by muscle cells upon their walls, and again opened up. And when we reflect on what must happen when capillaries through which infected blood is passing are shut down, we realise that the microbes which are in passage may be left high and dry upon the vessel walls or be imprisoned in isolated parcels of blood left behind in the lumen of the vessels. Opportunity may in this way be provided for the elaboration of ecphylactic foci. In relation to this I have proffered by way of suggestion that typhoid spots and other bacterial skin eruptions may quite well originate in this manner. It should be borne in mind in connexion with this suggestion that comparative measurements of (*a*) the agglutinins of serum derived from lymph admixed with blood obtained by pricking typhoid spots, and (*b*) of the agglutinins of blood obtained from the finger of the typhoid patients in question, have brought out the fact that the blood fluids obtained from the bacterial rash have only a tithe of the agglutinating power of the circulating blood.[5] And, presumably, exactly the same holds of the bactericidal power of these fluids. Further, in connexion with the development of bacterial rashes in typhoid fever and certain other septicæmias, this additional point may be considered. Microbes stranded in empty capillary loops in the dermis will probably, inasmuch as such microbes are less likely to be disturbed by a flushing out of the capillaries, find more favourable conditions for growth than would microbes stranded in capillary loops in muscles and glands. For, supposing microbes to be held back in the situations last mentioned by the closing down of capillaries, they would, when the

[3] Manwaring and Coe: Jour. of Immunology, 1916, i., 401. Opie: General Review, Jour. Amer. Med. Assoc., Nov. 14th, 1925.
[4] Harvey Lectures, Series XVIII., 1922–23.
[5] Wright and Lamb: THE LANCET, Dec. 23rd, 1899.

hyperæmia which goes with muscular and glandular activity supervenes, inevitably be swept out to meet their fate in the general circulation.

In addition to the machinery which closes down the capillaries there is in the organism other machinery which brings to a standstill blood previously in circulation. It has recently been shown by Barcroft [6] that the spleen regulates the volume of blood in circulation by loading itself up with additional blood when the volume of the circulating fluid is in excess of requirements; and by disbursing that blood when a larger volume of circulating fluid is required. It needs no gift of second sight to see that the withdrawal of blood into the stagnant diverticulum of the spleen will, in the case where that blood is infected, provide the microbes with opportunity for encasing themselves in ecphylactic envelopes. This no doubt accounts for the infecting microbe being regularly found in the spleen in typhoid fever, in Malta fever, in spirillum fever, and in anthrax; and for its being found there in large numbers (and in typhoid fever in the form of definite colonies) when the circulating blood is sterile. And again in this connexion it deserves to be remembered that in the three first-mentioned septicæmias with regard to which data are available [7] the blood from the spleen has been found in each case conspicuously inferior in antibacterial potency to the blood from the heart.

Turning now to the question as to how microbes which have ensconced themselves in ecphylactic niduses in the blood are subsequently combated, we may note that here both mechanical factors (in the form of alterations in the circulation), and chemical and biological factors (in the form of increased antibacterial potency of the leucocytes and blood fluids) may play their part. It will suffice in connexion with these last to note that the leucocytes which may under the stimulus of infection have acquired increased confrontation power and phagocytic efficiency; and the blood fluids, which may under that impulse have acquired increased bacteriotropic and antitryptic powers, may by degrees come into operation upon the microbes sheltering in ecphylactic niduses. With regard to the mechanical factors, the points of importance are these: Blood-vessels which have been closed down may be opened up, the circulating blood with its superior antibacterial potency being this let in upon bacterial colonies which have grown out in ecphylactic niduses. Further, by contractions of the spleen blood which has been lying stagnant in its diverticula may be returned to the circulation, the contained bacteria being thus resubjected to attack by the circulating blood fluids and leucocytes.

It is in this connexion interesting to ponder the question as to why in the ordinary streptococcal septicæmia there is neither growth of streptococci in colonies in the spleen, nor a bacterial eruption such as would indicate an outgrowth of microbes in the capillaries of the skin. In connexion with that problem it may be thrown out by way of suggestion that the absence of streptococcal growth in the spleen and in the cutaneous capillaries may perhaps stand in relation to the rigors. For see-saw changes in the circulatory system are of the essence of a rigor. In the cold stage the capillaries of the skin would be closed down, room being found for the expelled blood by the opening up of the diverticula in the spleen. In the hot stage the capillaries of the skin would be widely thrown open and any microbes which had been stranded there would be carried off into the circulating blood. And concurrently the spleen would contract to furnish the additional volume of blood required, and with this any microbes which had found temporary lodgment in its diverticula would in their turn be swept out into the blood stream.

We can now pass from the events which follow the introduction of microbes into the circulating blood to those that ensue when microbes are implanted into the lymph-infiltrated tissues. With respect to these two points require to be borne in mind: first, that there is not normally to be found there any population of leucocytes such as could protect them against an incursion of microbes; and, secondly, that lymph which lies in the tissues would, if we may generalise from such data as are available, appear to be of less bacteriotropic, and in particular of less antitryptic, potency than the circulating blood fluids. Microbes entering the tissues will accordingly be subjected to no such immediate assault as microbes entering the blood. Nevertheless, if we look a little further and regard the fact that reinforcements of leucocytes and serous fluid can be very rapidly poured in from the blood we may (and in reality this is merely forsaking verbal accuracy for substantial truth) accredit the lymph lying in the tissues with a faculty of killing microbes by first intention.

But—and this is all important as explaining the conditions under which microbes establish themselves in the tissues—effective killing of microbes in the lymph spaces is achieved only when there is adequate transport of phylactic elements from the blood into the tissues, and further only when a proper balance is conserved between its two elements, leucocytic immigration and serous effusion.

(1) When leucocytic immigration into the focus of infection is inhibited by the agency of bacterial toxin, and serous fluid containing few or no leucocytes is transported into the seat of infection, there is furnished to the invading microbes (let it be remembered that these are in practically every case serophytes) a ready-made ecphylactic nidus. To begin with, the transuded fluid provides the microbes with a favourable nutrient medium. Added to that phagocytic activity on the part of such leucocytes as are contained in the effusion is rendered impossible by the fact that leucocytes cannot dive into fluid and swim out in pursuit of microbes. And, finally, such leucocytes as have come out into the lymph cannot by reason of their paucity communicate to it any appreciable bactericidal power. This will be the position of affairs when we are dealing with œdematous swelling of the subcutaneous tissues or effusion into serous cavities.

(2) The formation of ecphylactic niduses in infected tissues will perhaps be favoured also in the case where emigration preponderates over transudation, and the emigrated leucocytes collect forming impacted foci of suppuration. In foci—such as we have in abscess sacs and in suppurating wound cavities—the leucocytes will under the influence of bacterial toxins, of deleterious external influences, or of both, first lose their power of phagocytosis and then succumb and disintegrate. When that happens the trypsin set free will reduce the antitryptic power of the surrounding fluid; and given that a considerable number of leucocytes disintegrate in a relatively small quantum of liquor puris, this will be converted into a definitely tryptic fluid. In the former case serophytic growth will be facilitated, and in the second not only serophytic but also non-serophytic microbes will be lying in a medium in which they can pullulate unrestrained.

Passing now from the study of the genesis of ecphylactic foci in the tissues to inquiry as to how the organism can combat microbes which are growing in such a nidus, there have here, as in the case of the blood considered above, to be regarded, first mechanical and secondly chemical and immunological factors. In the case where an immoderate serous effusion has converted the site of infection into an ecphylactic nidus, the position (we are assuming, of course, that there is no therapeutic interference) can be retrieved by a spontaneous resorption of the excess of fluid and a supplementary emigration of leucocytes. Similarly where a breaking down of emigrated leucocytes and a corresponding blunting off of the antitryptic reaction of the transudation fluid has converted the site of infection into an ecphylactic focus the situation would be retrieved by the supervention of further

[6] THE LANCET, 1926, i., 544.

[7] **Courmont**: Comptes Rendus Soc. de Biologie, 1897. **Wright and Lamb**: loc. cit.; **Lamb**: Scientific Memoirs by Medical Officers of the Army in India, Part XII., 1901.

serous effusion. For such superadded effusion would counteract leucocytic disintegration and at the same time limit serophytic, and arrest if such were in question serosaprophytic, microbic growth. Finally, it requires to be added by way of a rider that if the reinforcing leucocytes which immigrate into the focus of infection possess by virtue of an immunising response made by the organism increased confrontation power and increased phagocytic efficiency, and, similarly, if the reinforcing transudation fluid which is effused into the focus of infection has greater antibacterial potency, this improvement in the quality of the reinforcements will in each case conduce to a greater slaughter of microbes.

Having now considered how bacterial infections are combated in the blood, and in the lymph and tissues which are impregnated with lymph, our next task will be to inquire what provision exists for dealing with microbes which have found their way into a secretory fluid, or a tissue which is impregnated by or irrigated with a secretory fluid. In this inquiry a distinction must be made between three categories of secretory fluids. The first kind would be those which have the function of irrigating internal or external surfaces which lie open to infection from without. The secretory fluids which would be comprised in this class—in other words, tears, saliva, and mucus—possess the power of destroying all, other than specially acclimatised species of microbes. Let it be noted in passing that the bactericidal and bacteriolytic power here in question is a function of an antibacterial element (the so-called lysozyme)[8] which is distinguishable from the antibacterial elements of the blood fluids. The second class of secretory fluids comprises the synovia of the joints, tendon-sheaths, and bursæ, further the aqueous and vitreous humour, and, lastly, the cerebro-spinal fluid. The third and last class of secretory fluids would be the secretions proper, such as the milk, the bile, and the urine. The two last specified kinds of secretory fluids possess either insignificant antibacterial power, or, in the case of the cerebro-spinal fluid, so far as is known, none at all.

Coming now to what has application to the case where microbes have invaded a secretory fluid, or a tissue which is bathed in, or a surface which is irrigated by, or a cavity which is filled with such a fluid, reflection will show that here antibacterial elements from the blood might be conveyed into the site of infection by one or other of two channels. It is *in primis* conceivable that drugs—as distinguished from antibodies—might be extracted from the lymph by the secretory epithelium and be excreted into the site of infection.

We know that urotropin passes in this way from the blood into the cerebro-spinal fluid and the urine; that methylphenolphthalein passes thus into the bile; iodides into the saliva; and various drugs into the intestinal secretions. But these are altogether exceptional occurrences, and even a moment's reflection will show that the odds against a pharmaco-chemical bacteriotropic agent or an antibody passing through an intact secretory membrane into, let us say, the tears, or the vitreous humour, or the synovial fluid, or any secretory fluid other than milk are so great as to be almost incapable of expression in figures.

Coming now to the alternative channel by which antibacterial elements contained in the blood might be transported into the secretory fluids, it will be appreciated that blood-fluids containing drugs or antibodies would in inflammation which involved destruction of secretory epithelium be transported by way of the lymph directly into the focus of infection. Furthermore, consideration will show that antibodies from the blood might also by the agency of negative pressure be drawn out into a secretory fluid. Reference is made later to the work of Speranski,[9] which shows a connexion with the treatment of tetanus and rabies that therapeutic substances in sera can by completely aspirating the cerebro-spinal fluid be drawn from the subdural spaces into the substance of the central nervous system. Turning to the leucocytes it is conceivable that these might, even through an intact (and a fortiori through a damaged) secretory membrane emigrate into a secretory fluid.

But with regard to all such direct transport of protective elements from the blood into secretory fluids the following requires to be specially emphasised. The blood fluids will always work at a great disadvantage when they are either diluted or frequently washed away by secretory fluids. And similarly leucocytes emerging into a secretory fluid will be eminently ineffective. Illustration of this is furnished by, for example, gonorrhœal infections of the conjunctiva, genital mucous membrane, and joints.

The foregoing will have made clear that the efficacy of antibacterial treatment by pharmaco-chemical bacteriotropic agents depends not only upon their entering into rapid destructive chemical combination with the microbes and exclusively with these, but also upon the chemical agents in question being transported from the blood into the lymph and from the lymph into the secretory fluids. It has further appeared that the failures of pharmaco-chemical—and the same holds good of immuno-chemical treatment—are, as it would seem, more often imputable to a default of convection than to a default in the chemical constitution of the therapeutic agent employed.

And the mental picture we have just arrived at will be seen to fit in well with clinical observation which teaches that antibacterial treatment is wont to be more effective early in an infection—that is, when the microbes still lie open to attack in the lymph and the circulating blood—than in the later phase when they have entrenched themselves in the phylactic foci. We have in the domain of pharmaco-therapy illustration of this in the fact that salvarsan when given early in syphilis does in many cases extinguish the infection while, when given later, it very often fails to effect this. Further striking illustration of the therapeutic principle here in question is furnished by the fact that bismuth [10] given to animals inoculated with the spirochætes of hæmorrhagic icterus will, if employed soon after the inoculation, extinguish the infection, while it fails to do this when given after the lapse of a few days. This is the exact reverse of what happens with sanocrysin. The experiments of my fellow-worker, R. M. Fry,[11] have shown that this agent, which was reputed to enter into destructive chemical combination with tubercle bacilli, does not, even when employed in concentrations much stronger than would be possible in the body, interfere with the growing out of tubercle bacilli into colonies in the blood in vitro. And further, the experiments of Madsen and Morch [12] have shown: *first*, that sanocrysin does not, when given with or immediately after an injection of tubercle bacilli in any way hinder the march of the infection; and, *secondly*, that the drug given at a later date, and employed in strictly adjusted doses, saves a certain number of animals. The former of these findings is in obvious accord with the results obtained by Fry. The latter is, no doubt, explained by the fact that sanocrysin induces, like tuberculin, an infractive inflammation of ecphylactic niduses—such infraction being followed in non-resistant men and animals by a disastrous tubercular septicæmia, but no doubt in men and animals whose blood has been fortified by auto-immunisation,[13] by a destruction of the tubercle bacilli carried into the circulation.

The general principles which should inform all antibacterial treatment having now been set forth, our next task must be to consider the method by which antibacterial elements which may be present

[8] A. Fleming: Proc. Roy. Soc. B., 1922.
[9] Speranski: Annales de l'Institut Pasteur, xli., February, 27.

[10] Sazerac, Nakamura, and Kitcheritz: Comptes Rendus Acad. des Sciences, 1927, 184, 411.
[11] British Journal of Exp. Pathology, 1926, vii., 174.
[12] Madsen and Morch: Acta Tuberculosa Scandinavica, 1926, ii., 99.
[13] Wright: Paper on the Cultivation of the Tubercle Bacillus in the Blood, THE LANCET, 1924, i., 218.

in the circulating blood can be brought into operation upon infecting microbes in ecphylactic niduses.

We may conveniently begin our consideration of these methods by considering what we here require by way of terminology. We require, first, a general term which will embrace every kind of procedure which brings destructive agencies into operation upon microbes which would in the natural course of events escape unscathed. The term *kataphylaxis* will, perhaps, supply what is here wanted. We may further desire to distinguish *kataphylactic procedures* into: (*a*) *leucocytagogic procedures* which bring leucocytes, and (*b*) *seragogic procedures* which bring serum into operation. And, finally, where we have in mind the bringing of pharmaco-chemical elements into operation in regions which are sequestered from the blood stream, we may employ a term which is already in use, the term *kataphoresis*.

We may now take up the study of the methods of bringing pharmaco- or immuno-chemical substances into operation upon microbes which have elaborated ecphylactic niduses for themselves within the domain of the vascular system.

We have seen that opportunity for the establishment of ecphylactic niduses within the domain of the vascular system is provided, *first*, when the blood current is arrested by intravascular coagulation; *secondly*, when capillaries in the skin or elsewhere are closed down by the contraction of muscle cells in their walls; and *thirdly*, when blood which has been in circulation is brought to rest in the diverticula of the spleen. In the first case all that can be done is to administer citric acid [14] with a view to diminishing blood coagulability and preventing the reinforcement of the primary clot by a series of supplementary clottings.[15] When by timely intervention those reinforcements of the clot have been warded off, the lumen of the vessel will be rendered patent by the normal retraction of the fibrin and the washing out of the red corpuscles which constitute what we might call the "stuffing" of the clot. It will be obvious that when this packing of red corpuscles has been removed dissolved antibacterial elements both chemotherapeutic substances or antibodies, and also efficient leucocytes—supposing always that we have these in the circulating blood—will come into operation upon the microbes which have been sheltering within or behind the clot.

In the case where microbic colonies are lodged in the capillaries of the skin, these can be opened up by heat and other vasodilator influences. And such opening up will, in the case where antibacterial substances are circulating in the blood, result in these being let in upon the microbes, while the bulk of these will be swept out into the circulating blood and will, when that blood is bactericidally potent, be destroyed there. Let us call this *infractive and korethric* treatment (*korethric* from korethros—a besom or sweeping brush).

Ecphylactic niduses in the spleen require, like those in the capillaries, korethric treatment. But here instead of producing dilatation we require to produce contraction of the spleen. We might here avail ourselves of the fact brought out by Barcroft that vascular changes which call for an increased volume of circulating blood (changes such as general cutaneous vasodilatation and the dilatation which accompanies muscular action) produce a reflex contraction of the spleen. Or again, we might, making use of other physiological data furnished by Barcroft, produce a reflex contraction of the spleen by cutting down the respiratory value of the blood by administering carbonic oxide, or better (for this will be innocuous) ordinary carbonic acid gas. And, lastly, we might employ adrenalin, or again certain other pharmaco-chemical substances studied by Binet, Cardot, and Fournier [16] and so produce direct in lieu of reflex contraction of the spleen.

It is interesting to note in connexion with the exhibition of adrenalin that it has in cases of latent malaria been successfully employed for contracting the spleen and evacuating into the circulating blood (for purposes of diagnosis) crescents and other malarial parasites which have, as the common formula says, "retired from the superficial circulation into the spleen." It will be recognised that the parasites in question are not, in point of fact, organisms which have "retired" into the spleen, but organisms which (and the same happens to typhoid bacilli in typhoid fever, and spirilla in relapsing fever) have been able to establish favourable conditions for growth in the stagnant blood of the spleen, when those organisms which continued to circulate in the blood were killed.

A further point of interest in connexion with the administration of adrenalin in these cases is that very severe attacks of malaria are reported to have been produced by the treatment.

We have here again illustration of the fact that it is a sinister procedure to sweep microbes out from the foci in which they are lying quiet into the general circulation, unless we have ascertained before we do so that the blood in the general circulation has become bactericidally potent, or unless antibodies or pharmaco-therapeutic remedies have been introduced into the blood in order to prevent a generalisation of the infection. The risk of disseminating microbes into blood not capable of killing them was long ago abundantly illustrated in connexion with Koch's treatment of phthisis by tuberculin. It has also recently been illustrated in connexion with the administration of sanocrysin to tuberculous patients.

We pass now to consider the kataphylactic procedures which can be brought into application upon ecphylactic foci situated in lymph-infiltrated tissues and secretory fluids. Let us distinguish these into procedures which are both leucocytagogic and seragogic, and into those which are seragogic only.

Procedure.	*Physiological action.*
(1) Induction of active hyperæmia and inflammatory irritation.	Leucocytagogic and seragogic.
(2) Induction of passive congestion by Bier's bandages.	Seragogic only.
(3) Induction of œdema ex vacuo by depletion and evacuation of the local focus of infection.	Seragogic, and possibly leucocytagogic.
(4) Lowering of the general blood coagulability.	Seragogic only.
(5) Induction of Arthusian inflammation.	Leucocytagogic and seragogic.
(6) Employment of albumino-tractor (intertracting) agents.	Seragogic only.

The principles of the first three of these procedures and the methods of exploiting them being, it may be assumed, universally familiar, it will be unnecessary to say anything about them here, except only again to refer to the brilliant work of Speranski,[17] which shows in connexion with the treatment of rabies and tetanus (and the same would probably apply to all other cerebral infections) that antimicrobic and antitoxic elements contained in sera introduced into the subdural space can by the agency of negative pressure (established by the complete evacuation of the cerebro-spinal fluid under anæsthesia) be drawn into the substance of the central nervous system.

With regard to the principles of the three last kataphylactic procedures these may with advantage be briefly elucidated.

Lowering of the General Blood Coagulability.—showed in a series of papers now many years ago that urticaria, chilblains, physiological albuminuria and anasarca could all be brought under the general heading of serous hæmorrhage, and that such serous hæmorrhage, or to give it its more usual name, excessive serous effusion, is correlated with diminished blood coagulability and is aggravated by the exhibition of citric acid and other agents which reduce blood coagulability, and alleviated by calcium chloride

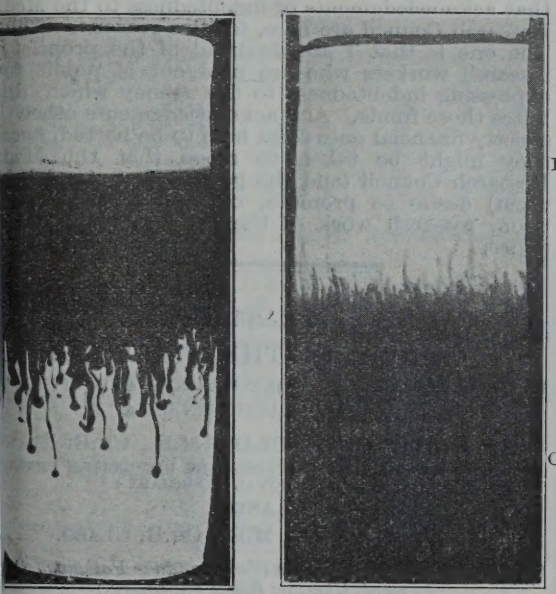
[14] Wright: B.M.J., July 14th, 1894. Wright and Knapp: Causation and Treatment of Thrombosis Occurring in Connexion with Typhoid Fever, THE LANCET, 1902, ii., 1531.
[15] Wright and Colebrook: Technique of the Teat and Capillary Tube, Chart VII., Appendix 1, pp. 133, et seq.
[16] Comptes Rendus Soc. de Biologie, 1927.
[17] Loc cit.

nd other agents which increase blood coagulability.[18] onsideration will show that the principle here involved as application also to the treatment of bacterial nfection in the tissues and more specially to pharmaco- nerapeutic treatment. For manifestly there will e better prospect of bringing a drug into operation n the tissues if the blood at the time the drug is ntroduced is in a state to furnish a maximum of erous exudate.

It will be interesting in this connexion to hark back o the paradox encountered earlier in this paper, the aradox that syphilitic infection is not infrequently

hotographs of Vertical and Horizontal Intertraction.

FIG. 1. FIG. 2.

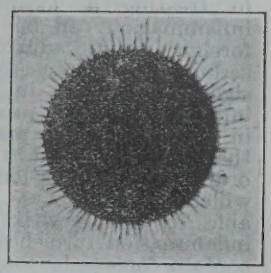


. 1.—Here a layer of serum coloured with eosin (B) has been uperimposed upon a layer of a specifically heavier (10 per ent.) salt solution (C). Beginning almost instantaneously the erum is rapidly drawn down (*descending intertraction*) into he salt solution in the form of pseudopodial streamers. bove the layer of coloured serum (B) the vessel is filled with ater (A). Into this after long waiting the serum gradually iffuses spreading upwards not in streamers but in the form f a level horizontally dispersed wavefront.

. 2.—Here uncoloured serum (B) is superposed upon a layer f coloured 10 per cent. salt solution. (C) After the lapse of a ew minutes the salt solution is drawn up into the serum ascending intertraction) again in the form of polypoid reamers.

cessfully extinguished by following out that oretically unsound procedure which Ehrlich called herapia sterilisans fractionata. Let us see whether s problem can now be cleared up. Partial illumina- n may perhaps come to us when we reflect that a g taken in repeated doses will, according as erent tissues and different portions of the body pen, after the incorporation of the dose to be own into activity, be determined each time to ifferent anatomical region. And on the doctrine chance there will in the case where many doses administered be a prospect of the drug being ied in turn into all such foci of infection as are accessible. From this clinical advantage is naturally to be expected. But there is superadded to this factor of chance another physiological factor which is operating steadily, in the direction of making the sequent doses of salvarsan more and more effective. Salvarsan, given in repeated doses, regularly and markedly lowers the coagulability of the blood. One can immediately see that this is bound to promote a freer flow of arsenic-carrying lymph through the tissues.

FIG. 3.

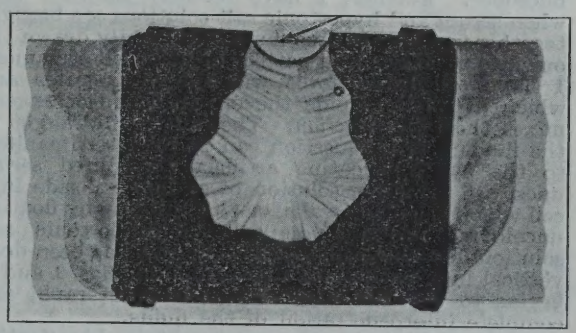


Here a disc of filter paper which has been fastened by a pellet of plasticine to the surface of a paraffin-rimmed cover-glass and has been impregnated with coloured serum has, after firm blotting, been floated inverted upon a 4 per cent. salt solution. Into this the serum is drawn out from the filter paper in the form of an ever-lengthening system of streamers.

Now, if it is this—and it may well be this—that renders the theoretically unsound therapia sterilisans fractionata practically effective, it would be well to consider whether it would not be more rational to begin the treatment of syphilis by administering citric acid in quantity sufficient to diminish blood coagulability and increase with this serous effusion all over the body. One might then hope to accomplish as much by a first dose of salvarsan as is by the ordinary procedure accomplished after a long series of doses.

Induction of Arthusian Inflammation.—It was shown by Arthus [19]—and our understanding of the subject has been much extended by Opie [20]—that when repeated doses of a foreign serum are hypodermically or intradermally inoculated, the third or fourth of the series (the first two having no visible effect) will be

FIG. 4.



Here a piece of specially dense filter paper has been cut out in such a way as to represent an axial section of a wound cavity. The artificial wound section thus obtained is then impregnated with coloured serum. It is then interpolated between a couple of microscopic slides and these are clamped together. This done any serum which may have escaped into the cavity is carefully evacuated, and the cavity is then filled with an ordinary 5 per cent. salt solution, or better with serum containing 5 per cent. of salt. As soon as this has been done the coloured serum is drawn out in streams from the encasing walls into the saline solution occupying the cavity of the artificial wound.

followed by some local œdema, the fifth and sixth by a more pronounced œdema, and the later injections not only by serous effusion but also by emigration of leucocytes and often by localised necrosis. It has been shown that the development of these phenomena is correlated with an elaboration of precipitins in the blood of the injected animal, and that the inflammatory reaction which follows incorporation

Wright: Remarks on Methods of Increasing and Diminishing the Coagulability of the Blood, with special reference to heir therapeutic employment, Brit. Med. Jour., July 14th, 97. *Idem:* On the Treatment of the Hæmorrhages and Purpuras which are Associated with Deficient Blood Coagulability, THE LANCET, Jan. 18th, 1896. *Idem:* On Two Cases of Purpuria Treated by the Administration of Calcium Chloride, Brit. Jour. of Dermatology, vol. viii., 1896. *Idem:* On the Association of Serous Hæmorrhages with Conditions of Defective Blood Coagulability, THE LANCET, Sept. 19th, 1896. *Idem:* On the Pathology and Treatment of Chilblains, THE LANCET, Dec. 30th, 1897. *Idem with Ross:* On the Pathology and Treatment of Physiological Albuminuria, THE LANCET, Oct. 21st, 1899.

[19] Comptes Rendus Soc. de Biol., 1903, p. 817. Ibid., 1478.
[20] Tuberele, October, 1925. Journal of Immunology, vol. ix. No. 4, 1924. Journal of Exp. Med., 1924.

of the foreign serum is probably due to its precipitation at the site of injection. An Arthusian reaction, quite similar to that obtained in the manner just described, can be produced by injecting into the blood of the animal which is to receive local inoculation of a foreign serum an antiserum to this. And again—and this is a procedure which might perhaps be employed in treating a localised infection—an Arthusian inflammation can be produced also by injecting a foreign serum admixed with precipitating antiserum. Let us note—for the fact may have therapeutic significance—that in all varieties of Arthusian inflammation the products of inflammation differ in a respect which may render them more effective than those furnished in ordinary inflammation. While ordinary inflammation furnishes a serous effusion which contains sparse leucocytes and is itself favourable to the growth of serophytes, an Arthusian inflammation furnishes a serous effusion which may contain copious leucocytes and is (it has presumably become so probably by virtue of a liberation of bactericidins from leucocytes) definitely bactericidal. Consideration will show that this method may in the future be found to have therapeutic applications. A mixture of serum and antiserum, or possibly an antihuman precipitating serum by itself, is the sort of agent which could be injected not only into an infected tissue or a neoplasm, but also into an infected serous effusion or secretory fluid. I have specially in view infections of the central nervous system and not alone syphilitic infections, but others like encephalitis lethargica, infantile paralysis, and rabies.

Employment of Albumino-tractor (Intertracting) Agents. It was long ago shown by Heidenhain that strong solutions of sodium chloride and other salts and also of sugar functioned when introduced into the blood as powerful lymphogogues. In connexion with these same solutions, I have, from 1900 onwards, and in particular during the war, been pointing out that they, when introduced into wounds or sinuses, operate as powerful local lymphagogues causing a welling up of serum, and with this a cleansing of these niduses of infection from all but serophytic microbes. Further, I have recently shown [21] that when serum and hypertonic salt solutions are brought together in vitro the two fluids are rapidly drawn the one into the other in a pattern of polypoid streamers. I have called the force which here operates and which draws the fluids the one into the other and mixes them *intertraction*. The mutual indraught of the fluids here in question can be rendered manifest to the eye by floating artificially coloured serum upon a 5 per cent. solution of sodium chloride in a cell which has plane walls, or alternatively by floating uncoloured serum upon coloured hypertonic salt solution in such a cell. As soon as this has been done vertical intertraction, as represented in Figs. 1 and 2, begins to manifest itself in the form of rapid and complete interpenetration of the fluids.

Horizontal intertraction can be obtained by floating upon a 4 per cent. salt solution a disc of filter paper fixed upon the lower surface of a paraffined rimmed cover-glass, and then impregnated with coloured serum. This gives appearances such as are depicted in Fig. 3.

A further experiment which illustrates the intertraction which is produced by the introduction of hypertonic salt solution into wounds is illustrated in Fig. 4. Here a dense filter paper which has been cut to represent the profile of a wound in section has been soaked in coloured serum and has been interposed between two slides. These arrangements made, the slides are clamped together, any superfluous serum in the cavity of what we may call the artificial wound is removed, and then there is filled into that cavity either hypertonic salt solution or better serum which contains 5 per cent. of salt. This done, the coloured serum which impregnates the paper is seen to flow out in the form of streamers in the wound cavity.

[21] Wright: Proceedings of the Royal Society B., vol. xcii., 1921; A, vol. cxii., 1926; A, vol. cxiv., 1927.

Consideration will show that hypertonic sa solutions can find useful kataphylactic applicati not only as local seragogues directly introduced in the wound for cleansing it from non-serophyt infection, but also when they are injected into t blood. They will then, as Heidenhain's classic experiments showed, function as powerful gene seragogues. And thus employed they will, in t case where the circulating blood contains chem therapeutic elements (immuno- as well as pharmac therapeutic elements) be bound to carry these in rapid stream through the tissues, achieving ve rapidly that transport of antibacterial elements in the foci of infection which will, even when it is favour by reduced blood coagulability, be accomplished or very slowly.

In concluding, I may, perhaps, venture to expla that acknowledgments of indebtedness to the Medi Research Council are here, for two reasons, withhe The one is that I am doubtful of the propriety research workers who are paid out of public fun expressing indebtedness to the agency which dist butes those funds. And acknowledgments other th strictly financial ones seem here to be barred, becau they might be taken to mean that the Medi Research Council (and the powers that stand behi them) desire to promote, or even look favourab upon, research work of the type embodied in th paper.

A CASE OF
CANCER OF THE PANCREAS,
WITH METASTASES IN BONE-MARROW AND LIVER, A MEGALOBLASTIC ANÆMIA.

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IT is now recognised that metastases in bo marrow, secondary to cancer of certain abdomi viscera, may produce a blood picture resembling m or less closely that of pernicious anæmia. Such ca are not common and, when they do occur, it seems us that they should be carefully investigated, in hope that they may shed some light on the origin the megaloblast and incidentally on the pathogen of pernicious anæmia itself. We wish, therefore, place on record the following case.

A male patient, aged 50, a labourer, was admitted hospital on Sept. 13th, 1925, complaining of general we ness and pain in the chest. Six weeks before admission noticed that he was losing strength, and within a fortni he was obliged to give up his employment. Further, in four weeks previous to admission he lost 4 st. in weig his appetite was poor, and he had attacks of sickness vomiting. On one or two occasions his doctor had covered albumin and sugar in his urine. There was history of sore tongue, hæmorrhage, thirst, or polyuria, there was no indication of disease of the central nerv system.

On admission he was emaciated and looked ill. mucous membranes were pale, the skin had a slight yellow tint, and he complained of vague pains in the right side the chest. The heart sounds were of poor quality, but murmurs were audible, and the blood pressure was There was slight lack of resonance with prolongation expiration and increase in vocal fremitus at the apex of right lung, while some scanty fine crackles were heard both apices. The teeth were carious and the gums swo and pale, but the tongue was clean. There was no abdomi pain, and the liver and spleen did not seem to be enlarg The urine did not contain any abnormal constituent.

During his stay in hospital there was no sickness vomiting, but the patient suffered from loss of appetite great progressive weakness. Tenderness and a degree resistance developed in the epigastrium and the liver increa very rapidly in size, the lower border ultimately reach

low the umbilicus in the middle line. The spleen was ver palpable, but, on percussion, as time went on, the enic area seemed to extend forward to the costal margin. actional test-meals on two occasions showed the presence free hydrochloric acid in normal amount. X ray examina- n suggested some deformity at the pylorus, associated th delay in the emptying of the stomach.

Coincident with the enlargement of the liver a slight lging became noticeable in the right infra-axillary area. finite pain was complained of over the ribs in this region th marked tenderness over the sternum and ribs. Towards end the patient became greatly emaciated, he sank idly, his skin assumed a deeper yellow tinge, and the n in the ribs and sternum increased. He died on v. 28th, 1925, 11 weeks after admission. There was ver any pain in the long bones.

Throughout his stay in hospital the patient had a fairly found degree of anæmia. Table I. shows the red blood- l counts.—

TABLE I.

Date.	Red blood corpuscles.	White blood corpuscles.	Hæmoglobin per cent.	Colour-index.
t. 14th ..	2,410,000	—	42	0·89
23rd ..	2,720,000	5,000	35	0·64
30th ..	2,730,000	8,150	35	0·64
. 8th ..	1,920,000	5,650	28	0·73
18th ..	2,360,000	7,870	32	0·66
r. 2nd ..	2,360,000	4,370	33	0·6

lood counts by Thoma-Zeiss method. Hæmoglobin estima- s by Gower's method.

lood films, stained with Leishman's and Jenner's stains, wed a large proportion of megalocytes, some poikilo- es, polychromasia, and granular basophilia, and the stant presence of nucleated red cells. Neutrophil marrow s were also observed in the blood films.

able II. shows the results of four differential white counts, and the number of nucleated red cells per 300 te cells.

TABLE II.

Differential Counts of 300 White Cells.

Type of cell.	Sept. 13, 1925.	Oct. 21.	Nov. 11.	Nov. 27.
	Per cent.	Per cent.	Per cent.	Per cent.
trophil polymorphs ..	54·6	47·4	57·3	74·6
nophils	3	5·6	3·6	6·6
phils	0·6	—	0·4	0·4
e mononuclears and ansitionals	17·4	4	15·9	3
phocytes	23	34·6	12·4	8·4
ocytes	1·4	8	7·4	5·4
oblasts	—	0·4	3	1·6
Number of Nucleated Red Cells per 300 White Cells.				
noblast	2	5	8	12
loblast	1	10	7	8

e blood-sugar on admission was 0·15 per cent. The ermann reaction of the blood was negative. H. van Bergh's indirect quantitative reaction showed the ubin in the blood to be less than 0·25 units. Fouchet's for bilirubin in the blood was negative.

Report of Post-mortem Examination.

orax: On opening the thorax a glandular mass was d in the mediastinum surrounding the trachea and chi and the great vessels arising from the aortic arch. equent examination proved that it was a secondary vement of the mediastinal glands by carcinoma. The of the left lung was also involved by a spread along peribronchial lymphatics from the mediastinal mass, throughout the substance of both lungs there were erous small nodules of secondary carcinoma. There a few very small nodules present on the parietal pleura the line of the angles of the ribs on the left side. The presented no abnormalities. Abdomen: The liver normously enlarged, weighing 162 oz., the parenchyma largely replaced by carcinomatous nodules of varying and size. The larger nodules were of long standing ng from the umbilication present, but the majority ed to be of recent date, since they varied in size from n. downwards. The hæmosiderin reaction was defi- positive and comparable to the reaction found in ses associated with rapid blood destruction.

emosiderin granules were found, on microscopic exami- n, to be present both in the liver cells and also in the helial cells. They were fine in character and scattered more or less uniformly throughout the liver cells. The reaction was not so intense as that found in many cases of pernicious anæmia where the hæmosiderin is present in large amounts. Extensive permeation of the liver substance had taken place with minute collections of malignant cells. The spread was up the biliary lymphatics, and no embolic cells were found in any of the blood-vessels. No evidence could be found of hæmatopoiesis in the liver, either megaloblastic or normoblastic, in the section examined. Spleen: The spleen was considerably larger than normal. Throughout the organ there was a diffuse invasion by malignant cells, varying from groups of 3 or 4 up to masses the size of Malpighian bodies. Embolic masses were to be seen in the arteries and veins spreading throughout the splenic sinuses. Nucleated red cells resembling normoblasts and eosinophilic leucocytes were seen in abundance. Endothelial cells containing ingested red blood corpuscles and altered hæmoglobin were present in considerable numbers throughout the sections.

Pancreas: The pancreas was found to be firm and fibrous. Situated in the substance at the junction of the body and head was a hard tumour about the size of a walnut, which was taken to be the primary tumour. Microscopic examination showed it to be an adenocarcinoma. The islets of Langerhans were prominent and congested, and seemed to be more abundant than normal. Kidneys: There was a chronic interstitial nephritis present in both organs. The bone-marrow from the long bones was examined and in all there was decided vascular reaction. The entire length of the shaft of the bone was filled with marrow of a maroon colour, and the appearance simulated that found in pernicious anæmia. Peculiar opaque gelatinous-looking areas were scattered throughout the marrow of all the bones which microscopic examination showed to be secondary deposits of adenocarcinoma. The bony trabeculæ normally present in the interior of the shafts of the bone were completely absorbed, and there was erosion of the inner wall of the compact bone, thereby increasing the available space for blood-cell production.

To such an extent was the left humerus weakened that during manipulation at the post-mortem it fractured. On microscopic examination the bone-marrow was in no case found to be normal, showing an erythroblastic reaction, with varying amount of replacement with adenocarcinoma. Films were made from the marrow of all the long bones and two of the ribs. Pieces of marrow were also taken, fixed in formalin, embedded in paraffin, and stained by Pappenheim's panoptic method, Leishman, eosin methylene-blue (Mallory), hæmalum and eosin.

Examination revealed (1) normoblasts; (2) megaloblasts, these being nucleated red cells of a large size with finely reticulate nuclei and a cytoplasm of an oxyphilic or polychromasic reaction, many of which were in a state of mitosis; (3) megalocytes showing both oxyphilic and polychromasic cytoplasm; (4) myeloblasts; (5) myelocytes, showing both oxyphilic and basophilic granules; (6) large numbers of adenocarcinomatous cells of spheroidal type. These malignant cells were situated in clusters, always in close relationship with one of the larger arterioles, but in no case were they found actually inside a blood-vessel. In some situations, however, they were enclosed by a fibrous tissue stroma lined with a delicate endothelium. This had been formed in all probability by the distension of the marrow sinuses with malignant cells. In other situations there was a diffuse infiltration of the marrow with malignant cells, and it is interesting to note that there was no special reaction on the part of the marrow in the immediate neighbourhood of the clusters of invading cells in the form of a megaloblastic reaction—i.e., in no place could the type of marrow cell immediately surrounding the clusters be considered to be different from that found throughout the marrow in general.

Discussion.

When the patient came under observation the diagnosis was not quite obvious. The progressive weakness, anorexia, sickness and vomiting, together with the anæmia and the blood picture, and the absence of any definite localising sign of neoplasm or other cause of anæmia, were suggestive of pernicious anæmia. However, the rapid enlargement of the liver, the presence of large numbers of nucleated red cells and myelocytes in the circulation, associated with pain over the ribs and sternum, suggested the diagnosis of malignant disease with bone metastasis. The presence of free hydrochloric acid in the stomach, and the result of the van den Bergh reaction, tended to confirm this diagnosis.

A striking feature of the case was the presence of large numbers of nucleated red blood corpuscles in the circulation and, in view of the conclusions of

Piney regarding the specific character of the megaloblast, special attention was directed to these cells. Piney holds that the true megaloblast has a finely reticulated nucleus, and that this specific cell is found only in pernicious anæmia and familial icterus. He maintains that it is formed in the liver as a fœtal remnant. The remaining nucleated red cells found in the circulation in various diseases he differentiates into two types: (1) macronormoblasts, which have cart-wheel nuclei and polychromasia of the cytoplasm, and (2) normoblasts. One hundred nucleated red cells were examined from 14 dry-blood films, eight films being stained with Leishman's stain and six with Jenner's stain. The measurements were made with eyepiece and stage micrometers. Forty-seven of the cells had average diameters of 10 microns or over. The smallest nucleated red cell had an average diameter of 7·2 microns, while the largest, two of which were observed, had average diameters of 12·75 microns.

In a general way, the size of the nuclei varied directly with the size of the containing cell. The largest, measuring 8·5 microns, were found in cells of 11 and 11·9 microns in diameter, while the smallest nucleus, 3·5 microns in size, was found in a cell of 10·2 microns in diameter. The largest cell, 12·75 microns, had a nucleus of 6·8 microns, and the smallest cell, 7·2 microns, a nucleus of 5·9 microns.

Great variation in structure was observed in the nuclei examined. The majority showed some degree of condensation of the basichromatin. In 15 there was definite pyknosis such as is seen in the normoblast, in 9 the basichromatin was arranged so that the structure of the nuclei resembled the "cart-wheel" type, while in 52 nuclei the condensation varied in degree from a mottled or blotchy arrangement to a stippled or granular appearance, and the formation of a rather coarse openwork reticulum. In two nuclei the basichromatin had the arrangement of a tangled skein, in six cells the nucleus was finely reticulate in character, and in another cell the nucleus was in chromosome formation. Fifteen nuclei showed fragmentation or segmentation. The six cells showing the finely reticulate appearance varied from 8·5 to 11 microns in average diameter. The cytoplasm of five of these cells was polychromasic, while in the sixth cell the cytoplasm stained faintly with eosin. Generally it was noted that the nuclei showing definite pyknosis, or some degree of pyknosis, were most often found in cells having eosinophil cytoplasm, yet such nuclei were also seen in cells showing polychromasia.

It is difficult to classify these nucleated red cells into clear-cut types, as the great variations in the size of cell, nuclear structure, and associated staining reaction of the cytoplasm seemed to represent different stages in the life of the nucleated red cell. The six cells already mentioned showing finely reticulate nuclei were thought to resemble those megaloblasts described by Piney as being specific to pernicious anæmia. Accordingly, these six cells, together with the other large cells having a large mottled, reticulate, or openwork nucleus, are regarded as true megaloblasts and similar in all respects to those found in the circulation in pernicious anæmia.

As regards the origin of the megaloblast microscopic examination failed to reveal the presence of blood-forming tissue in the liver. Megaloblasts were very numerous in the bone-marrow, and many were observed in the process of division. The megaloblast is not normally present in the marrow, but in this instance it is considered that the bone-marrow was the site of origin of this cell as well as the other nucleated red cells found in the circulation.

The possible relationship of this megaloblastic marrow to the tumour metastases is a question of some interest. Ehrlich has suggested that a toxin derived from the cancer cells might supply the stimulus which determines this change in the marrow. In this connexion the work of Russell is of interest. He showed that in mice the transplantation of carcinomatous cells could produce a sarcomatous change in the connective tissues of the new host. He quot a case, reported by Schmorl, as illustrating the occu rence of a similar process in the human subject, wher in a man who died from carcinoma of the prostat secondary deposits were found in the skeletal syster In the bend of the right femur one of the deposi was surrounded by an extremely cellular mesoblast tissue of a sarcomatous type, this malignant chan being induced by the carcinomatous cells. Russe also mentions the conclusion of Axhausen wh attributed this change to irritation, presumably of chemical nature, of the stroma by the cancer cells.

The human marrow is a mesoblastic tissue, and our case just recorded it has taken on an embryon type of growth, shall we say, in response to the inv sion of cancer cells. Microscopic examination, hov ever, failed to show that the megaloblastic reactio was confined to the vicinity of the tumour metastase and so if the cancer cells were producing a stimulu they would seem to have done so at a distance—i.e the tumour toxins must act in a diffuse manner.

The character of the blood, marrow, and th hæmosiderin deposit in the liver in our case presen an appearance very similar to that met with in cas of pernicious anæmia where presumably there is al a toxin or some other form of stimulus acting o the bone-marrow and so inducing the megaloblast reaction. If this is the case, it would suggest th conclusion that the marrow change in the presen of cancer metastases and in pernicious anæmia is th primary episode and that the hæmolysis and hæm siderosis are secondary events. This is Ehrlich original idea and it has the support of many oth hæmatologists.

We acknowledge gratefully the invaluable assistan and helpful criticisms of Prof. W. K. Hunter an Prof. John H. Teacher in whose departments th work was carried out.

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THE EFFECT OF VARIOUS CARBOHYDRATE FOODSTUFFS ON THE BLOOD-SUGAR IN DIABETES.*

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IT has been known for a long time that the bloo sugar rises after a meal containing carbohydrat It is probable that the less the pancreas is ove stimulated by a raised blood-sugar, the better the chance of a certain amount of recovery, or, at an rate, of stopping the progress of the disease. To preve an excessive rise in the case of diabetic subjects, th carbohydrate in meals is restricted, but at prese the custom is to regard all foodstuffs which conta the same amount of carbohydrate as equivalent their effect. Such a view can only be definite proved if the same variations of blood-sugar a found in a patient after meals containing vario carbohydrate foodstuffs, the total amount of carb hydrate being kept constant.

Owing to the laboriousness of the work, it has n been found possible to examine very many of th carbohydrate foodstuffs suitable for diabetic patient though some of the most important have been teste

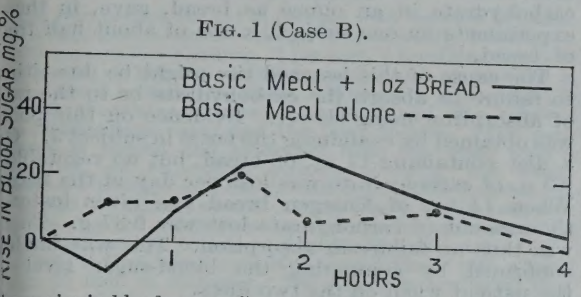
Method.—The method adopted was to give diabetic subject a series of test breakfasts. On of the breakfasts consisted of two eggs, 1 oz. butter, and tea, while the carbohydrate foods be examined were added to the other breakfast The blood-sugar was estimated before and at quart

[1] Most of this work was done while the author was holdi the Parsons Fellowship at Guy's Hospital.

or half hourly intervals for three to four hours afterwards. As a series of daily tests were required, the choice of a subject was of some importance. A mild case was necessary in order to avoid giving insulin before the meal; the whole of the insulin required was given at night and in quantity sufficient to keep the fasting morning blood-sugar within reasonable limits (preferably about 0·1–0·12).

Cooking.—The rusks used were made by baking 1 oz. of bread in an oven till light brown in colour.

FIG. 1 (Case B).



hows rise in blood-sugar after non-carbohydrate meal and also an almost similar rise preceded by a fall when the same meal plus 1 oz. bread was given. The base-line represents the initial fasting blood-sugar.

he carbohydrate content was estimated in another iece baked at the same time. The oatmeal was oiled for four hours, the turnips were boiled and ashed, the excess fluid being strained off. The urrots and potatoes were boiled 50 min. and the ater strained off. The tomatoes were fried or baked a tin. The cabbage was steamed for one hour.

In two subjects the response of the blood-sugar the meals was irregular. In these the following vo points were noticed: (1) A rise in the blood-sugar as obtained when the test breakfast without carboydrate was given. (2) When a meal containing

TABLE I.

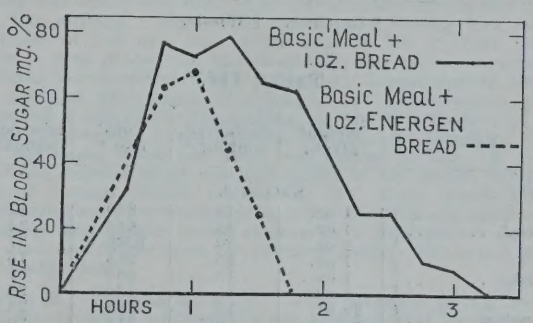
Food.	Method of cooking.	Carbohydrate content. Anticipated percentage average in food tables.	Carbohydrate content. Percentage of weight raw.	Carbohydrate content. Percentage of weight after cooking.
rots, old ..	Raw.	7·7	5·44	—
	Sliced and boiled 50 min.	—	3·4	5·4
rots, young	Raw.	7·7	7·3	—
	Boiled whole 50 min.	—	4·9	5·5
atoes :—				
uke large	Raw.	18·0	15·1	—
of large	Cut in half and boiled 50 min.	—	12·0	12·5
ork small	Raw.	18·0	15·6	—
	Boiled whole 50 min.	—	15·1	18·0
harp's Exp. small ..	Raw.	18·0	—	—
	Boiled whole 50 min.	—	16·7	20·2
X., medium	Raw.	18·0	20·4	—
	Cut in half and boiled 50 min.	—	17·3	18·5
ang's medium	Raw.	18·0	17·5	—
	Cut in half and boiled 50 min.	—	12·4	13·3

bohydrate was given the first blood-sugar taken f an hour after a meal, instead of showing the usual nite rise, was either the same as, or actually lower, n the initial fasting blood-sugar (Fig. 1). Cammidge obtained similar results and has correlated them h variations in the acid-base balance due to tion of first acid and the alkaline digestive juices. hould be noted that in only two out of the seven s examined here was such a result obtained, le presumably all secreted acid and alkaline stive juices. In the case of these patients it was, ever, considered that some factor other than the amount of carbohydrate taken was involved, and the results were not used in this investigation.

With the first two subjects the amount of carbohydrate food given was such as would contain 15 g. of carbohydrate in its uncooked state, judged according to the food tables of Atwater and Bryant. This is the usual way of ordering the food in a diet. It was then realised that it would be more satisfactory to know the exact amount of carbohydrate given, and in subsequent experiments an estimation of the carbohydrate content was made on a sample of the food after preparation. Later on estimations were made on the cooked food used in these early experiments, the methods of cooking being repeated as closely as possible, but the values obtained in the case of potatoes and carrots varied so much that only a rough approximation of the actual carbohydrate given could be made. Table I. illustrates this point. Fortunately, the bread used, which came from the hospital bakery, was found to be of almost constant composition.

In comparing results, both the height and the duration of the rise of blood-sugar should be considered.

FIG. 2 (Case 5).



Shows rise in blood-sugar after the test-meal plus 1 oz. bread and after the same meal plus 1 oz. Energen bread. Both meals contained almost equal amounts of carbohydrate. The area between the curve and the base-line represents the total rise. The base-line represents the initial fasting blood-sugar.

For the sake of convenience this is referred to as the total rise. The amount of carbohydrate given must also be considered and the total rise per gramme of carbohydrate determined by dividing the total rise by the number of grammes of carbohydrate given. The total rise referred to above is measured from the area between the blood-sugar curve and the base-line drawn through the fasting value, but the following method of calculating the total rise adopted, while not absolutely accurate, is sufficiently close for the purpose. The rise of blood-sugar over the initial value expressed as milligrammes per cent. is found for each quarter hour after the start of the meal, and the sum of these is taken as the total rise. If, for any reason, the estimation was missed at any given quarter hour the average of the preceding and succeeding quarter hours was used. In a few cases where the blood-sugar had not returned to normal when the experiment was stopped, an addition was made, based on rate of fall in progress at the end of the experiment; in no case did this addition make any substantial difference to the results.

Results.—Table II. gives the figures obtained in subjects 1 and 2, while Table III. gives those in subjects 3, 4, and 5. In subject 4 the experiment was inadvertently carried into a menstrual period. The fasting blood-sugar in three experiments were 0·139, 0·140, and 0·137, against 0·109, 0·104, and 0·108 in previous experiments. As this would indicate a temporarily decreased tolerance, the results are not strictly comparable. In order to be able to bring the results together, the average rise per gramme with 1 oz. of bread in each subject has been called 100, and the remaining results expressed as a percentage of this, as shown in Table IV.

TABLE II.

Food.	Weight.	Carbohydrate. Expected from table.	Carbohydrate. Later analysis.	Total rise.	Rise per gramme of carbohyd.
Subject 1.					
Bread	1 oz.	15	15	1200	80
	,,	15	15	1125	75
Tomatoes, fried	16 oz.	15	—	1005	67
	,,	15	—	870	58
Carrots, old, boiled*	6½ oz.	15	6·2	136	38
Carrots, young, boiled†	,,	15	10·6	106	10
Potatoes, young, boiled†	3 oz.	15	13·2	569	42
	,,	15	13·2	308	23
Salad, raw	—	15	—	195	13
Strawberries, raw	—	15	—	345	23
Subject 2.					
Bread	1 oz.	15	15	390	26
Tomatoes, fried	16 oz.	15	—	435	29
Cabbage, steamed	12½ oz.	15	—	390	26
Turnips, boiled	8 oz.	15	5·4	111	21
Artichokes, steamed	3½ oz.	15	—	135	9

* In slices. † Whole.

TABLE III.

Food.	Weight given.	Carbohyd. content.*	Total rise.*	Rise per g. carbohyd.
Subject 3.				
Bread	1 oz.	15	870	47
	1 oz.	15	645	34
	2 oz.	30	1260	37
Rusks	1 oz.	15	285	15
	1 oz.	15	405	21
	1 oz.	15	435	23
Turnips	22 oz.	12	384	24
	10½ oz.	6·7	214	20
Apple	7 oz.	21	567	23
Subject 4.				
Bread	1 oz.	15	375	20
	2 oz.	30	660	15
Rusks	1 oz.	15	285	15
	2 oz.	30	630	18 (*a*)
Oatmeal	—	13·1	293	17 (*a*)
Subject 5.				
Bread	1 oz.	15·8	558	32
	1 oz.	16·7	500	27
Rusks	1 oz.	14·8	441	27 (*b*)
	1 oz.	16·4	586	33 (*b*)
	1 oz.	15·2	89	5·4
Energen bread	1 oz.	15·2	282	17
	1 oz.	15·2	260	15·5

* In subjects 3 and 4 the meal contained 4 g. of carbohydrate as milk in tea, and in subject 5 1·5 g. of carbohydrate.

Remarks.—(*a*) Menstruating. (*b*) Fasting blood-sugar unusually low.

TABLE IV.

Food.	Subject used.	Rise per gramme per cent.	Average.
Bread, 1 oz.	1, 2, 3, 4, 5	100	100
Bread, 2 oz.	3	91	93
	4	95	
Rusks, 1 oz.	3	37, 52, 57	71
	4	75	
	5	92, 111	
Rusks, 2 oz.	4	90	90
Energen bread	5	18, 58, 52	43
Oatmeal	4	85	85
Turnips, boiled	2	82	63
	3	59, 49	
Tomatoes, fried	1	87, 75	91
	2	112	
Cabbage	2	100	100
Potatoes	1	54, 30	42
Carrots, old	1	50	50
,, young	1	13	13
Artichokes, boiled	2	35	35
Apples, raw	3	57	57
Strawberries, raw	1	30	30

Discussion.

It will be seen from Table IV. that many carbohydrate foods give a definitely smaller rise per gramme of carbohydrate than does bread. With the exception of tomatoes and turnips, all fruits and vegetables tested gave a rise of about 50 per cent. or less. Of the cereal foods used, oatmeal showed a figure slightly below 100 per cent. on the one occasion it was examined. Rusks gave a varying response, but on the whole showed a definitely smaller rise per gramme than bread. Energen bread, which contains as much carbohydrate in an ounce as bread, gave, in three experiments on one subject, a rise of about half that of bread.

The cause of this lessened rise might be due either to failure to absorb the carbohydrate or to the rate of absorption being slower. Evidence on this point was obtained by examining the fæces in subject 5. On a diet containing 1½ oz. of bread, but no vegetables, 0·3 g. of carbohydrate was lost per day in the fæces. When 1½ oz. of Energen bread was given instead the amount of carbohydrate lost was 0·37 g. There was thus no failure in absorption. This was further confirmed by comparing the blood-sugar level of the patient when on the two diets.

Bread.	Blood-sugar per cent.	Energen bread.	Blood-sugar per cent.
May 4th, 1927—		April 27th, 1927—	
11.15 A.M.	0·084	11.10 A.M.	0·099
3.10 P.M.	0·086	—	—
5.30 P.M.	0·107	5.30 P.M.	0·109
May 9th, 1927—		April 29th, 1927—	
11.30 A.M.	0·083	11.15 A.M.	0·086
3.5 P.M.	0·091	3.10 P.M.	0 097

It will be seen that there is practically no difference between the two sets of figures, suggesting that the same amount of carbohydrate was absorbed in each case. It is possible in the case of uncooked fruit and vegetables that, owing to their structure, a certain amount of carbohydrate is not absorbed.

Conclusion.

1. Certain carbohydrate foodstuffs cause less rise of the blood-sugar per gramme of carbohydrate than do others. (2) This is probably due to a slower rate of absorption.

My thanks are due to Dr. E. P. Poulton for much advice and practical help, and to Dr. Robert Hutchison and Dr. Poulton for permission to use their patients for the experimental work. I also wish to thank the various subjects who cheerfully submitted themselves to the discomforts of the experiments.

AN OPERATION FOR THE ALLEVIATION OF DEAFNESS.

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IN 1919, while serving in the Indian Medical Service and acting as surgical specialist of the Mhow Division, I was approached by many people suffering from deafness, and was unable to help them.

One day I found in the cantonment hospital in Jubhulpore a fine old Sikh of 65 or more lying on the operating-table; he refused to move until I had operated on him, as this was his lucky day. About a month previously I had extracted both his cataracts and he could see perfectly, so he believed that the cure of his deafness was an easy matter. I had many times refused to operate, explaining that the eye was on the surface, and the organ of hearing hidden at the bottom of a long narrow canal embedded in the skull. It was these discussions that finally suggested to me mind the operation here described.

He was very importunate and had indeed taken an oath of starvation unless I operated, and so I asked

he doctor babu to give him chloroform and operated on both ears. The man made an excellent recovery, and went home both seeing and hearing. This brought me such a stream of similar sufferers that I did not know how to cope with them.

The fundamental idea of the operation is simple. When deafness is due to obstruction of the Eustachian ube the treatment is to make a new passage leading rom the exterior into the cavity of the middle ear ehind the ear-drum.

The Operation.

The skin behind the ear is painted with tincture of iodine nd a light general anæsthetic given, preferably chloroform, hich ensures less bleeding. ½ per cent. phenolaine* (a local næsthetic) is injected subcutaneously, and an incision is ade close behind the pinna. When the periosteum is eached phenolaine is injected under it and also between he cartilaginous canal and the bony meatus. The peri-steum is incised and separated from the bone with a aspatory, all redundant periosteum being cut away. IcEwen's triangle is located, and a retractor inserted, so s to pull the pinna forward. All the vessels on the posterior ap are clamped, while those on the anterior are compressed y a small wad of cotton-wool under the retractor.

A hole is then bored over McEwen's triangle with a hand ouge 11 mm. in diameter. The boring is continued in a irection which cannot be previously defined, as it must llow the line of least resistance, skirting in front of the teral sinus. There is a thin dense wall of bone lining the nus, which can always be seen as a dark blue mark. inally, depending upon the anatomy of each case (and l are different), an occasional cell is reached about 10 mm. om the surface; though less frequently there are cells mm. from the surface. The 11 mm. gouge is used till a inness is noticed at the bottom of the boring. A 7 mm. gouge now used, and the boring, or rather filing or scraping ocess, is continued until the thin wall of the antrum, or tic of the middle ear, is reached and gently scraped away. he first opening to appear is probed to discover whether it only a cell or a larger cavity leading into the middle ear; e excavation is continued till a definite opening of about mm. diameter is produced. A strong probe with a short ght-angle bend is inserted and the thin wall between e antrum or middle ear (as the case may be) and the ring is broken away by pulling outwards. A fine probe, nt at an angle of 45° at the tip, is carefully passed at e bottom of the boring towards the middle line to ascertain the attic of the middle ear has been entered. Great care taken not to disturb the processus gracilis of the malleus. he total depth from the surface of the skull to the bottom the attic is 22 mm.

The posterior portion of the cartilaginous canal is now parated from the osseous canal, and the ridge of bone ween this canal and the boring is scraped away with the mm. gouge for about 5 mm. The cartilaginous canal is ided transversely at the level of the ridge and two gitudinal incisions are made so as to reflect a flap of the al outwards. A broad director is inserted through the ernal auditory meatus under the flap, and the incisions continued, till the external auditory meatus will admit tip of the little finger.

The flap is now sewn with catgut to the under surface of reflected skin, so as to keep the widened meatus patent, l stop bleeding.

Two suitable rubber tubes are now inserted from the ernal meatus to the bottom of the boring.

The incision at the back of the ear is closed with horse-, a small opening being left at the bottom for drainage. ear is smeared with carbolised (1 per cent.) vaseline a dressing applied behind it.

hammer is never used as the bone is extraordinarily able in density. In old-standing cases it is ivory-hard there are no cells, while the lateral sinus forms a bend ards the external auditory canal. The facial nerve runs risk, while the lateral sinus can always be seen. The a mater is occasionally seen when the bone is very dense; is when the cranial cavity comes lower down than usual, ll the space normally occupied by the mastoid cells.

After-treatment.

he tubes are syringed out and one is removed on the day; on the second day the remaining tube is removed the cavity plugged with narrow ribbon gauze. The e is removed twice a day and the cavity syringed out er with 1 in 4000 perchloride of mercury or with odide, or with a weak solution of hydrogen peroxide, or ochlorite.

y the end of a week the cavity discharges a good deal ucus. The orifice is kept patent with gauze plugging, which is renewed once or twice a day for three weeks. On each occasion that the plugging is removed the cavity is syringed out with a weak antiseptic. Special care should be taken to inspect the bottom of the boring with an auro-scope, so as to keep the foramen open which enters the middle ear; this is about 18 mm. from the surface. By the end of the third or fourth week mucous membrane lines the boring and joins with the skin of the external auditory canal. After a month or so the patency of the external opening is maintained by using a large lacrymal probe. The patient usually goes home at the end of the third or fourth week. A thin membrane, almost like tissue paper, often forms across the opening after some weeks and may require to be pierced every now and then if the hearing diminishes.

The result of the operation is to produce a new air passage to the middle ear. This incidentally opens the Eustachian tube, as the middle ear is now no longer a closed cavity, and so the patient can easily blow air through the Eustachian tube via the middle ear and out by the extreme auditory meatus. The middle ear is also drained, and the mucous membrane rendered healthy.

Clinical Records.

CASE 1.—Woman aged 42. One ear was absolutely deaf due to total removal of the ossicles, ear-drum, &c., seven years previously. The other ear became slowly deaf, till finally she could not hear any conversation unless she saw the lips moving. She could not hear a tuning-fork held in front of her ear, but could hear it for a short time when it was placed on the mastoid. As she is a school mistress her deafness was a calamity. I operated in 1922. Six months afterwards she found no improvement and attended a school for lip-reading, as she felt there was no hope. Personally I was hopeful, because she heard me call out her name when her back was turned to me. A year later the improvement was noticeable to her sister, but the patient herself would not admit it. Four years after operation the improvement was so marked that she answered numbers and single words spoken in a moderate voice in the dark and in the open air 12 yards away. She is not now noticeably deaf.

CASE 2.—Woman aged 29. Had steadily grown more deaf for six years, until finally she was too deaf for ordinary conversation, and never attempted to hear unless the speaker spoke close to her ear. In 1923 I operated on both her ears. In 1924 she reported very considerable improvement. In 1926 she wrote to say she was no longer deaf and was very happy, and was getting married on the strength of her restored hearing.

CASE 3.—Woman aged 68. She had given up all social functions, as she could only hear with a speaking-tube. In 1925 I operated on both her ears with a month's interval. Her improvement was so marked in six months that she was again able to take up the social duties her position entailed.

CASE 4.—A masseuse aged 50; operation 1922. She could not even hear a tuning-fork on the mastoid, nor a motor horn nor church bells. I operated on both ears with a week's interval. After three months she heard a tuning-fork on the mastoid and a motor horn blown close to the ear. She practised hearing every day through a cardboard cylinder and a laryngophone. In a year's time she was able to hear quite well with a powerful electrical instrument. In two years she was able to hear the organ in church and also the choir. Now, with the help of a simple aid, she can hear ordinary conversation, and can very easily carry on her occupation.

Results.

I have operated on more than 200 cases, from the ages of 4 to 70 years. The results have been variable, depending upon the period of the deafness. The improvement in the hearing of many patients who have been deaf for 30 years has been astonishing, and no case has ever been worse after the operation. In many the deafness has been arrested, while in the great majority the hearing has been greatly improved.

Patients should be inspected periodically, wax and debris removed from the external canal, and perhaps the thin membrane punctured. Dr. Bordley, of Baltimore, has injected an antiseptic fluid several times into the middle ear through the passage I had made in the case of one of my patients. She is an American lady of 64, and she has written to say that she has been much benefited by the treatment. In this direction there is still plenty of scope for

Martindale.

research. I look upon a period of one to two years after the operation as essential for estimating the result. Many patients find a great improvement after the first month if not sooner, but more generally it appears after six months.

The best results are obtained where deafness is due to blocking of the Eustachian tubes with indrawn ear-drums. One might term this condition "throat deafness," resulting from neglected tonsils and adenoids, with a narrowed nasopharynx and high palate. Such patients are frequently very deaf, almost stone-deaf, and they suffer from very distracting noises in the head. In four extreme cases the patients had almost lost their speech, as they could not hear their own voices. Many patients of this type have a typical deaf voice, a typical adenoid expression, and a difficulty in breathing through the nose. The improvement naturally depends on the length of time the deafness has been present.

Less favourable cases are those in which the Eustachian tubes are patent and the nasopharynx large. I have operated on many cases of otosclerosis; the mastoid portion of the temporal bone is very brittle and there are many large cells. These cases are not very favourable, but even some of them have been improved.

A CASE OF

SUPPURATING DERMOID OF THE CEREBELLUM.

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THE following case is of interest on account of the rarity of cerebral dermoids and because of the bacteriological findings in the blood and cerebro-spinal fluid.

The Clinical History.

A girl, aged 1 year 9 months, was admitted to the Borough Hospital on Jan. 29th, 1927, as a case of diphtheria, owing to redness of the throat with a croupy cough. She had been quite well and intelligent until one week before admission, when she appeared ill, vomited suddenly, screamed constantly, and complained of pain in her head and limbs; the parents noted some stiffness of her head and neck.

She was born with a small hairy cyst over the external occipital protuberance. When 6 months old she fell on the back of her head; after this the cyst grew larger and started discharging purulent matter. It was removed at the Croydon General Hospital on July 12th, 1926, but the wound kept discharging for one month.

Condition on Admission.—The child was fretful and restless, with occasional spasmodic cough. The throat was injected, but clean. Temp. 102° F., pulse 128. There were no signs in the chest, and no rigidity of head, neck, or limbs. During the night she was restless, with screaming attacks lasting for 20 minutes; she appeared to have pain in her head, but was quieter the following day. On Feb. 1st she was worse, with rigidity of the head and neck and some retraction. She strongly resented examination and screamed incessantly. Her pupils were equal, reacting sluggishly to light; reflexes present, no Babinski but double incontinence. On lumbar puncture 25 c.cm. of turbid fluid under pressure were withdrawn. After this she was quieter and slept for some hours and her temperature fell to normal. Next day she was better and the rigidity and head retraction had disappeared. On Feb. 4th she again became restless, screaming constantly; stiffness of neck and head retraction were marked, but limbs flaccid. Tâche cérébrale noted. A second lumbar puncture yielded 16 c.cm. of turbid fluid, not under pressure. On Feb. 9th she suddenly vomited, and this continued almost daily subsequently. The vomiting was not related to food. Subsequently her condition did not vary much. She was extremely irritable if approached, screaming at the slightest sound. When left alone she had crying attacks lasting for 20 minutes or longer, the cry resembling "cock-crowing" rather than a meningeal cry. The child did not appear to know anybody; she took her feeds eagerly, though occasionally there was dysphagia. The nervous symptoms were variable; on some days the head retraction and rigidity of neck and limbs was marked, with a fixed stare, the child being unable to turn herself in bed, and lying on her side with fingers clenched on palms and legs drawn up. At other times there was complete vascular relaxation throughout the disease, pupils were equal and reacting, reflexes present. There was incontinence of both rectum and bladder, and marked general wasting. About the middle of March the skin over the neck and chest turned almost black, and subsequently peeled in small flakes, leaving a clear skin below; this discoloration spread successively to abdomen, arms, and legs; concurrently there was marked growth of hair over the back of forearms and calves. After a few weeks the skin was normal.

On the morning of May 28th she collapsed, becoming cold, pale, and pulseless, with shallow respirations. She was soon revived with stimulants. During the following days she appeared weaker and drowsy, the spasms of crying were less frequent, but she was still very irritable and resented being touched. On the night of June 6th the child was very restless, screaming constantly, and she died suddenly at 1.10 A.M.

Temperature and Pulse.—Throughout the disease the child ran an irregular temperature which reached 102·6° F. at first and fell to normal by the end of the second week. After this it kept almost normal, or subnormal, till March 22nd, when it started to rise irregularly with variations of 3° in 24 hours. It was normal by April, became irregular on May 21st, with marked variations, until about a week before death, when it was subnormal. The pulse was rapid and weak, imperceptible at times, and became slow and irregular during the last fortnight.

Bacteriological Findings.—Lumbar puncture was performed six times between Feb. 1st and April 7th at periods when there was marked rigidity of head and neck. The quantity of cerebro-spinal fluid withdrawn varied between 25 c.cm. on the first occasion and only a few c.cm. on the last occasion. It was turbid and under pressure on Feb. 1st and 26th, but only slightly turbid and not under increased pressure at other times. It did not reduce Fehling's solution. Microscopically it showed excess of polymorphs and a Gram positive diplococcus, which was also cultured from the blood. It formed slightly raised white colonies on agar, tending to run together with crenation at margin. Mannite, lactose, insulin, and salicin were unchanged; gelatin was liquefied; milk turned slightly alkaline and glycerine slightly acid. It formed acid with glucose, maltose, and cane sugar. These results were confirmed by Prof. J. C. Ledingham.

Summary of Post-mortem Findings.

Brain.—The brain was œdematous and the ventricles distended with excess of cerebro-spinal fluid. It weighed 29 oz. There was no visible exudate on vertex or base, and membranes were not thickened.

Cerebellum.—A white cyst of the size of a hen's egg occupied the greater part of the right cerebellar hemisphere. On section it had smooth laminated wall, and a quantity of thick yellow pus was evacuated. It also contained a coil of brownish fine hairs. The cyst was not adherent either to the skull bones or the cerebral membranes. All the skull bones appeared normal. Except for slight congestion of the kidneys and spleen all the other organs appeared normal. The cyst wall was composed of fibrous tissue and hairs were present. There was some round-cell infiltration of the cerebellar abscess. The following cranial dermoids are on record:—

A man[1] 22 years old, who died at Fort Pitt, was found to have a congenital encysted tumour with semi-fluid content under the integuments covering the frontal sinus. The cyst contained oil globules and hairs.

A boy[2] 2½ years old who suffered from squint and convulsions of body and limbs following a fall off a chair later became comatose and died. He had a cyst of the dura mater on the posterior part of brain causing a depression in the occipital bone. The contents were composed of opaque white substance and purulent material, and in many places mixed with fine hairs collected together in a lock.

A girl[3] aged 7 had been suffering from increasing loss of power in lower extremities and had fallen violently on the back of her head two years before admission to Charing

Cross Hospital. Post mortem an abscess was found which had invaded the greater part of both lobes of cerebellum. It contained purulent material, was lined with a cheesy layer of sebaceous matter, and contained a tuft of hair rolled in a coil. The abscess was a suppurating dermoid of the cerebellum.

A boy [4] 4 years old, with a year's story of fits and paroxysmal attacks of headache and vomiting, was admitted to the Royal Free Hospital, dying there three months later. He was well during the greater part of the time, except that at intervals of two to three weeks he had attacks of severe frontal headache and vomiting lasting a few days. A bright yellow tumour was found in the orbital surface of the frontal lobe in front of the optic chiasma. It had a definite wall containing numerous hair follicles and active sebaceous glands.

A man,[5] 75 years old, who had been an epileptic and had been in an asylum for 38 years, had a tumour in the frontal lobe which contained fat and epithelial cells in the centre, while in its walls were skin, hair, sebaceous glands, cartilage, elastic tissue, and muscle.

Laumalogue [6] describes a cerebellar cyst the size of an orange containing a yellowish-white granular mass and many curled hairs. It was adherent to the occiput by a fibrous band which was lost in the bone.

Conclusion.

Dermoids of the brain are very rare; they occur at all ages and often suppurate. Trauma appears to be a factor in causing them to grow. They often give rise to headache, vomiting, fits, and convulsions, but not to paralysis of limbs. Progressive mental dullness and drowsiness ending in coma are common sequelæ.

In the case now recorded there was also extreme irritability to touch and sound, a constant peculiar cry resembling "cock-crowing" rather than a true meningeal cry, marked general body wasting and double incontinence. It is interesting to note the intermittent character of the rigidity of head and neck and stiffness of limbs; there was never any change in the reflexes nor were Kernig's sign or ocular paralysis present, which they probably would have been had the child been suffering from meningitis.

The micro-organism recovered from the blood and cerebro-spinal fluid was not one of those usually found in meningitis, as was confirmed bacteriologically, though the cerebro-spinal fluid was turbid and under pressure. It is difficult to account for the curious darkening of the skin followed by desquamation which developed during the third month of illness. The congenital cyst over the occiput which was removed six months before admission to the hospital was presumably a dermoid which, according to the history, started growing after a fall on the head. This may have caused the cerebellar dermoid to grow at the same time. The specimen of the brain from this case is now in the museum of the Royal College of Surgeons of England, Lincoln's Inn Fields.

I wish to thank Dr. H. P. Newsholme, medical officer of health for Croydon, for permission to publish this case; Prof. J. C. Ledingham for confirmation of the bacteriological findings; and Dr. H. W. Southgate for the pathological report.

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A "ROYAUMONT BED" AT THE ROYAL FREE HOSPITAL.—Recently the French Ambassador presented the nameplate of a bed bearing this designation. The cost of its endowment, £1000, has been raised by the Scottish Women's Hospital Association of the "Royal Free," an organisation founded in 1921 to raise money for the endowment of beds in the obstetric and gynæcological unit. A secondary object was to commemorate by a permanent memorial the work of the Scottish women's hospitals during the war. This is the sixth bed which has been similarly endowed.

Clinical and Laboratory Notes.

THE VALUE OF SODIUM TETRAIODOPHENOLPHTHALEIN IN STEARIN CAPSULES AS AN INDICATOR OF PANCREATIC OBSTRUCTION.

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LIEUT.-COLONEL, LATE R.A.M.C.; SURGICAL DIRECTOR, NORTH MIDDLESEX HOSPITAL, EDMONTON; LATE ASSISTANT PROFESSOR OF SURGERY, GLASGOW UNIVERSITY.

WORKERS at the North Middlesex Hospital have for some time pursued a series of investigations on the surgical diagnosis of affections in the region of the liver, using salts of sodium tetraiodophenolphthalein or sodium tetrabromophenolphthalein.

Technique.

The technique of administration of these drugs is well known. The stomach and intestines are emptied by a suitable purgative, and the salt is administered in the evening, 12 hours before the X ray photograph is taken,

Radiogram showing shadows cast by stearin capsules of sodium tetraiodophenolphthalein in the cæcum in a case of pancreatic obstruction. (Radiograph by Mr. H. C. Mayle, M.S.R.)

just before retiring to bed. The patient is asked to sleep, if possible, on the right side. In certain cases X ray plates are taken again about 16 hours after administration, when a clear picture of the size, condition, and situation of the gall-bladder is seen and stones may be very easily detected.

We give this preparation, usually the iodine salt, by the mouth in the form of powder, in doses of 40–60 grains, without any toxic effect, the dose varying with the body-weight of the patient. The preparation we use is made by Messrs. Duncan, Flockhart and Co., Edinburgh. We have also given the drug in tablet form (Martindale's gelatin-coated "slipules iodoray"). Messrs. Boots recently supplied a sample under the name "cholumbrin," which is a stearin-coated capsule containing 7½ grains of the active substance, which passes intact through the stomach and dissolves under the action of the pancreatic juice in the small intestine. This averts gastric irritation.

A lady, aged 69 years, was referred to me recently by Mr. James McClure for diagnosis and treatment. She was given 10 capsules, each containing half a gramme of cholumbrin, and at the appropriate time she was X rayed. The salt did not appear to be excreted by the gall, and the capsules were passed into the large intestine, as is seen in the figure, where a number are seen lodging in the cæcum; one has passed through the greater part of the intestine, and is about to enter the sigmoid.

The abdomen had been carefully examined, and a tumour detected on the right side. In addition, there was well-marked jaundice, obviously due to obstruction of the bile-ducts. The X ray plate, with intact capsules, was puzzling. The patient had taken only half a pint of fluid after the capsules. It might be

that there was not sufficient fluid in the stomach and intestines to dissolve the coating, but I felt sure that there must be some form of intestinal juice which would dissolve it, and came to the conclusion that the obstruction must be in the region of the ampulla of Vater, causing deficiency not only in bile flow, but also in the pancreatic juices, especially steapsin.

I operated on the patient on Oct. 10th, 1927, assisted by Mr. R. L. Galloway, and the anæsthetic —nitrous oxygen and oxygen—was given by Dr. F. P. de Caux, anæsthetist to this hospital. The record of operation was as follows :—

A transrectus incision was made on the right side above the umbilicus, and the peritoneum opened. Quite a large quantity of free bile-stained fluid escaped. The exploring hand revealed small, hard, carcinomatous areas scattered through the whole of the omentum. The liver was very large, but no actual involvement could be seen. The gall-bladder was hugely distended, and its whole surface was covered with small cancerous nodules. The hilum of the liver was filled with growth, and the retroperitoneal tissues in the region of the pancreas showed the same condition. A diagnosis was made of general carcinomatosis of the abdominal organs, with the origin in the head of the pancreas. The abdomen was closed in layers without drainage. The wound healed, and the stitches were removed on the tenth day ; the patient was well, and the colour of the skin rapidly improved. The jaundice probably passed away as the result of manual dislodgement of mucus during the operation. Patient discharged, much improved, in 21 days.

Remarks.

An old-fashioned rough-and-ready method of diagnosis in pancreatic obstruction was to give a dose of castor oil and watch the result to see if the oil passed through undigested. A refinement of this was to give wax-coated capsules of methylene-blue. If there were pancreatic obstruction the urine would be uncoloured ; but in the absence of obstruction the capsules would dissolve, and the methylene-blue would rapidly make its appearance in the urine. In this case the capsules were sim larly undissolved, denoting pancreatic obstruction, in association with the more obvious sign of biliary obstruction, but, fortunately, *the material is quite opaque to X rays, giving visible evidence.*

As I have not seen any record of this observation in the literature of abdominal surgery, I am desirous of bringing this matter to general attention.

A NOTE ON
BLOOD TRANSFUSION IN SYRIA,
WITH AN ANALYSIS OF 1149 BLOOD GROUPINGS.

BY E. H. R. ALTOUNYAN, *M.C.*, M.D. CAMB.,
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THE adoption of blood transfusion as a routine measure in hospitals is still far from universal, but soon there will be no justification for the practice of surgery where facilities for transfusion do not exist. In the Near East the wide prevalence of severe secondary anæmia due to chronic malaria gives a further incentive to the use of transfusion.

In a recent series of 145 transfusions in the Altounyan Hospital, Geoffrey Keynes's method for citrated blood alone was used. Some such method must always be preferred for emergency work in general hospitals, reserving the possibly more efficient, and admittedly more difficult, use of non-citrated blood for the treatment of anæmia and other "medical" conditions. It is true that 50 per cent. of my series had well-marked rigors, but I have seen a severe reaction after the transfusion of 200 c.cm. of non-citrated blood with a Becart-Pauchet syringe, while no deleterious effect of citrate on the blood count was observed. A pint of citrated blood ready for instant infusion may permit the successful removal of a dangerously adherent spleen, which would otherwise be abandoned as inoperable. Hybrid methods, employing paraffined tubes with "just a little citrate" added, have little to recommend them.

Blood Transfusion Service.

Every patient on admission is grouped and the group is noted in a prominent place on his chart. He is then asked to name a friend as donor or, alternatively, to deposit £2 to provide for a professional should occasion arise. The practice of blood-letting once or twice a year at the village barber's still prevails in this country, but the popular imagination which accepts the homely sweep of a dirty razor seems dismayed at the surgeon's array of shining needles. In this series about 40 transfusions were provided by the patients' friends.

Professional donors are entirely drawn from Armenian refugees and all healthy men and women under 40 are accepted. Active syphilis is excluded by a Wassermann or Sigma reaction ; in 117 blood examinations of apparently healthy candidates, 12 per cent. were strongly positive. The largest quantity of blood withdrawn at one time was 650 c.cm. One girl, aged 20, gave 450 c.cm. twice in one week without serious disturbance to her health.

Table giving Analysis of 1149 Blood Groupings.

Race.	Group 1.	Group 2.	Group 3.	Group 4.
Arabs	32 (5%)	216 (37%)	129 (22%)	212 (36%)
Armenians ..	23 (5%)	230 (53%)	56 (13%)	129 (29%)
Jews	9 (7%)	46 (38%)	19 (16%)	48 (39%)
General population	64 (5·5%)	492 (43%)	204 (17·5%)	389 (34%)

The table gives the blood group percentages of the three races that form the principal components of the Syrian population. In this country the Jews and Armenians represent almost pure racial groups, with little admixture of foreign elements. Under the heading of Arab are included some Turks, Kurds, and a few Greeks, as well as the nomad and town-dwelling Arabs. It is interesting to note that there is an appreciable difference in the percentages of Groups 2 and 4 given by the Armenians, on the one hand, and the Arabs and Jews on the other.

Technique.

The methods and apparatus described in Keynes's book on "Blood Transfusion" (Oxford Medical Publications) have been used throughout. The most difficult part of the procedure and the most important, if a supply of donors is to be maintained, is the painless withdrawal of blood. The following technique is in use at this hospital :—

1. A sphygmomanometer is wrapped round the arm well above the elbow.
2. An intradermal wheal, 2 mm. in diameter, is made with 2 per cent. novocaine immediately over the selected vein.
3. A very fine hypodermic needle, mounted on an empty 2 c.cm. syringe, is introduced at one edge of the wheal, picking up but not piercing the anterior wall of the vein, and re-emerging through the wheal at its opposite edge. The syringe is then disconnected.
4. A vertical nick of 1 mm. is made with a sharp-pointed scalpel through the wheal immediately below the transfixing needle.
5. A Keynes's needle sterilised in paraffin is slowly introduced into the vein and the blood led off by a rubber tube into a Keynes's flask containing 2 g. of sodium citrate dissolved in 50 c.cm. of distilled water.

Blood Grouping.

Out of 1149 groupings performed during the last two years, three cases of abnormality have been noted.

1. Auto-hæmagglutination occurred twice. At room temperature the serum of the patient agglutinated his own red blood corpuscles. This did not occur if the slides were placed immediately in the incubator at 37° C. One was a boy, aged 16, suffering from splenic anæmia. After splenectomy, and coinciding with an improvement in his general health, his blood reacted normally. The other was a man of 30 suffering from profound secondary anæmia, due to hæmorrhoids, and early malignant disease of the rectum. Both patients were transfused without ill-effects.

2. A girl, aged 20, suffering from advanced pulmonary tuberculosis from which she died a year later, belonged apparently to Group 2. Her serum was tested against the red corpuscles of a donor of the same group, and marked agglutination was noted. The test was repeated on two different occasions with identical results. In all ten

different donors, some of them belonging to Group 4, were tried, and finally it was decided not to transfuse the patient.

A man with advanced pulmonary tuberculosis, and a woman suffering from advanced cirrhosis of the liver, with ascites and splenomegaly, also appeared to present the same abnormality, although they could not be investigated as fully as the first case.

This part of the work was carried out by Miss Setyan and Miss Meryack in the hospital laboratory. The actual grouping tests of every patient transfused were seen by the doctor responsible for the transfusion. As an additional safeguard the serum of each recipient was tested directly against the corpuscles of the donor. The observance of these two precautions may save much remorse. Universal donors were seldom used.

A CASE OF MASSIVE TUBERCULOSIS OF THE LIVER.

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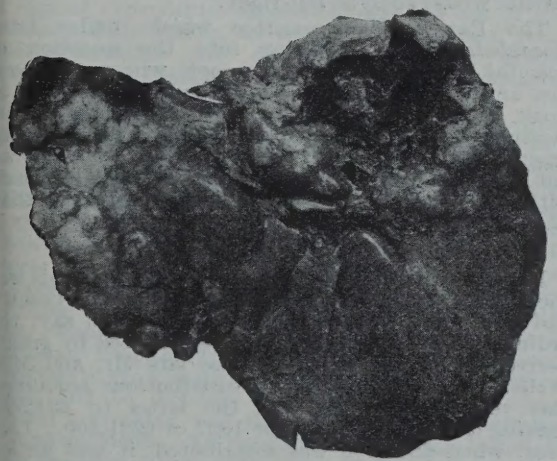
TUBERCULOSIS of the liver is generally seen in its miliary form when the liver becomes infected, in company with other viscera, as a terminal event to some tuberculous process elsewhere in the body. It is rare for chronic caseating tuberculosis to commence in the liver, and it is on this account, and also because of the difficulty of diagnosis while the disease was confined to the liver, that the following case is recorded.

The Case Related.

A boy, aged 11 years, was admitted to the Hospital for Sick Children under the care of Dr. Robert Hutchison in February, 1926, with a history that for six weeks he had suffered from sharp attacks of pain in the right hypochondrium. The pain occurred about 20 minutes after taking food, and often radiated up between the shoulder blades. During this period there had been three transient

FIG. 1.

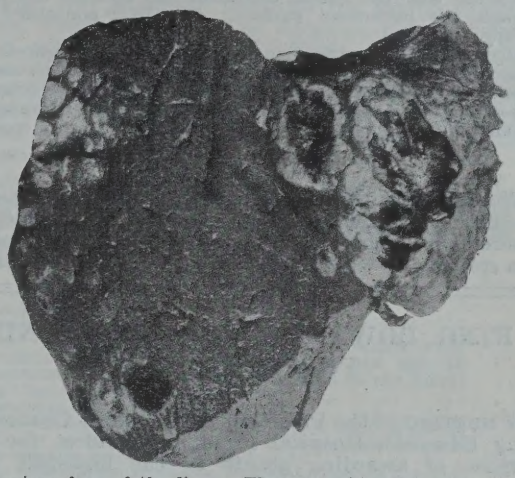


Posterior aspect of the liver, showing an abscess cavity in the right lobe and extensive involvement of the left lobe.

attacks of jaundice. A year previously the tonsils had been removed, otherwise the past history and family history were negative.

Condition on Admission.—The patient appeared delicate, with a clear complexion, free from any trace of jaundice. The lymphatic glands in the neck and in the right axilla were slightly enlarged. The heart and lungs were normal. There was some fullness in the epigastrium, the veins of the anterior abdominal wall were dilated, and the current in them flowed from below upwards. The liver was enlarged, but not tender, and extended two inches below the costal margin; the edge was grossly irregular and very firm, the surface felt coarsely nodular like a portal cirrhosis. The left lobe of the liver was well-defined, but the limits of the right lobe were ill-defined, especially deeply, towards the right renal region, where an indefinite mass could be palpated. The spleen was palpable half an inch below the costal margin, and felt quite smooth. There was no ascites nor œdema of the extremities. The urine was normal. The Wassermann reaction was negative; a blood count showed nothing abnormal beyond a slight secondary anæmia. The fragility of the red corpuscles was normal. A lævulose test (Dr. W. W. Payne) suggested a slight impairment of liver function, the figures being: blood-sugar before lævulose,

FIG. 2.



The cut surface of the liver. There is a big abscess cavity in the left lobe and another close to it. There is also a bile-stained cavity in the right lobe. Note the accumulation of small caseous areas in the right lobe just under the capsule.

0·084 per cent.; one hour after 35 g. lævulose, 0·110 per cent.; two hours after 35 g. lævulose, 0·107 per cent.

At first it was thought that the liver contained secondary deposits of malignant growth, the primary focus being in the region of the right suprarenal body; during the ensuing month, however, the clinical condition remained unchanged, and there was never any pyrexia; indeed, apart from the enlargement of the liver, the boy seemed to be in such good health that the diagnosis was altered to cirrhosis of the liver.

The patient was not seen again until October, 1926, when he complained that for two months his back had been aching. He was obviously thinner, but not jaundiced. The liver had not appreciably changed since February, but the spleen now reached the level of the umbilicus. There was still no ascites. The spine, in the mid-dorsal region, showed an early kyphosis, and the radiological report by Dr. Bertram Shires was that the body of the fifth thoracic vertebra was undergoing destruction and collapse with abscess formation.

The boy lived on for six months. During this time he had one attack of jaundice, which lasted a month and completely cleared up. The spinal deformity increased slightly, and signs of involvement of the right lung appeared. The liver and spleen remained unaltered. During the last two months there was a daily pyrexia up to about 101° F., and emaciation became profound. Eventually the symptoms of tuberculous meningitis appeared, and he died in April, 1927.

Post-mortem Examination.

The body only weighed 30 lb. The cranial contents showed the typical appearance of tuberculous meningitis. The bodies of the fourth, fifth, and sixth thoracic vertebræ were carious and had formed a large abscess, which was adherent to the adjacent pleura covering the upper lobe of the right lung. The lung in this part contained several small tuberculous cavities, and the rest of the right lung showed tuberculous broncho-pneumonia. The peritoneum was thickly studded with small cauliflower-like masses of caseous material; there was no ascites, nor were the intestines welded together into the conglomerate mass characteristic of advanced plastic tuberculous peritonitis. The spleen (weight 150 g.) was enlarged, and its capsule was covered with similar caseous tufts, but the spleen pulp was entirely free of tubercle formation. Both kidneys were enlarged (weight 120 g.), but contained no tubercles. The mucosa lining the stomach and intestines was normal; the mesenteric glands contained a few foci of miliary tuberculosis. The liver (weight 1250 g.) (Figs. 1 and 2) extended down to the umbilicus. Its surface was covered with caseous masses, while projecting from the liver substance through to the surface were many bosses of yellow tuberculous material. The left lobe was almost entirely occupied by a large abscess which was filled with a greenish-yellow liquid consisting of liquefied tuberculous pus, broken-down

liver substance, and bile. In this were suspended pieces of more solid caseous material. The walls of the abscess varied in colour from deep green to yellow, and were crossed by thick fibrous septa of supporting liver tissue. In the upper part of the right lobe of the liver was a similar abscess. In addition, the right lobe contained several smaller areas of solid yellow caseation, situated just under the capsule, suggesting that the causal organism had entered the liver through the peritoneal surface. The liver contained no miliary tubercles.

Microscopical examination confirmed the diagnosis of tuberculosis of the liver. In addition, one of the strands crossing the wall of the abscess in the right lobe proved, on section, to consist of tuberculous material and original supporting tissue of the liver around a patent blood-vessel.

Commentary.

The mode of infection of the liver in these cases is uncertain, but some writers have called the condition tuberculous cholangitis, holding the view that infection spreads by way of the bile-ducts. Others consider that the tubercle bacillus reaches the liver through the portal vein, and that the abscesses formed in the liver do not become bile-stained until rupture occurs into a bile-duct. Certainly in the case here recorded most of the smaller caseous areas showed no bile-staining. A third possible route of infection is by direct spread through the peritoneum into the liver substance; this route seems the most likely in the present case from the grouping of the younger caseous areas under the liver capsule.

Massive tuberculosis of the liver is a disease of long duration, and gives rise to no specific symptoms; even jaundice seems to be uncommon, owing to the small number of ducts usually involved, and until a secondary tuberculous process appears in some other part of the body the condition is likely to be mistaken for cirrhosis of the liver.

I wish to thank Dr. Hutchison for permission to publish this case.

KING EDWARD'S HOSPITAL FUND FOR LONDON.

A MEETING of the President and General Council of King Edward's Hospital Fund for London, for the purpose of awarding grants to the hospitals and convalescent homes for the present year, was held on Dec. 13th at St. James's Palace, the Prince of Wales being in the chair.

Remarks by the Prince of Wales.

The Prince of Wales read the following message from the King: "The King is very glad to hear that King Edward's Hospital Fund is increasing its distribution from £245,000 to £247,000 with the help of the League of Mercy, who are contributing £17,000, instead of £15,000. His Majesty offers his congratulations to all concerned, and earnestly trusts that the Fund will continue to make the same steady progress in the years to come." For the last two years, said His Royal Highness, the ordinary distribution had remained at £245,000. This year it had been increased to £247,000. The quarter of a million was being approached. Another £2000 had been advanced this year because the League of Mercy were giving £2000 more. Without this extra £2000, a distribution of £245,000 only would have been maintained. The British Charities' Association were again giving £15,000. Only one large donation had been given to the general fund—namely, £8000 from an anonymous friend. But legacies showed an increase of £10,000, and income from investments had risen by £3000. The capital fund continued to grow. The largest donation added to investments this year was Mr. H. W. Marshall's gift of £10,000 Conversion Stock. The legacy of £60,000 bequeathed to capital by the late Lord Iveagh had, of course, not yet been received. The total distribution for 1927 was, however, not £247,000, but £281,500. For grants were being made of £34,500 out of the legacies of the late Mr. and Mrs. Wells for special purposes, particularly schemes of extension and improvement. The distribution of these legacies had not yet quite finished; but they had already helped to provide more than 1300 additional beds, including 144 beds for accident cases, which were becoming a problem for all hospital people. The report of the Distribution Committee dealt with another aspect of this problem—the best way of providing immediate medical attendance on accidents and other emergencies at the outlying hospitals, many of which were developing out of cottage hospitals into general hospitals. Some of these had resident medical officers, some had not. The Distribution Committee had studied the visitors' reports; they had had a conference with the principal hospitals concerned; they had formed their own views on the subject; they had circulated them to the hospitals; and they now recommended that the Council should publish them. But they had laid down no rules; they would for the present content themselves in most cases with asking each hospital each year if it was satisfied that its own methods were adequate. thus combining the influence of a voluntary central body with the freedom and responsibility of the separate voluntary hospitals. The figures in the report showed that hospital expenditure continued to grow with the increase in the number of beds. Hospital income decreased a little during 1926, which was a year of exceptional difficulty. The hospitals, therefore, had a deficit, for the first time since 1922. It was not large—only a little more than 1 per cent. of their expenditure. It was chiefly due to a falling off in legacies, which had gone back to the level of five years ago. One thing was very encouraging. In spite of all the industrial depression, the patients' contributions continued to grow, working men and women—and much credit was due to them—were coming forward splendidly to do their share; and if everybody else did the same, the finances of the hospitals with deficits would soon be put right.

The Pay Beds Committee which, under Lord Hambledon, was inquiring into the question of hospital accommodation for people who were above the ordinary income limits, had been steadily at work, and expected to present its report to the annual meeting of the Fund in April or May. The pensions scheme for nurses and hospital officers was now all but complete; and would begin on Jan. 1st next, with 89 London hospitals, representing more than 12,000 beds.

The Financial Statement.

Lord Revelstoke (the hon. treasurer) said this was the fourth year in succession in which the Council had made two distributions; that was to say, the ordinary distribution, and that represented by grants derived from the legacies of the late Mr. and Mrs. Wells. The former of these distributions amounted this year to £247,000, and the latter to £34,500, making a combined total for 1927 of £281,500. Last year, when £245,000 was distributed, it was anticipated that it would be necessary to make use of the whole of the £9000 which had been added to the reserves in 1925. But, owing to the receipt before the end of the year of some unexpected contributions, they were enabled to limit the withdrawals to about half of this amount. At the November meeting this year the estimates showed that, with the aid of this unemployed balance, it would be possible to maintain the distribution at £245,000. With regard to the Wells legacies, £214,240 had been received on account, which amount covered the grants already made to hospitals and those recommended by the Distribution Committee. Lord Iveagh, who had been a very good friend to the Fund, had left £60,000 to be applied to capital account. This generous bequest, together with Mr. H. W. Marshall's gift of £10,000 3½ per cent. Conversion Stock, would substantially increase the capital fund, and would benefit the income derived therefrom.

League of Mercy.

Sir William Collins, in making the annual statement on behalf of the League of Mercy, said that the bulk of the receipts of the League were derived from collections which had to be gathered fresh every year. The amount was therefore apt to vary. This year they were able to make the King's Fund a grant of £17,000, £2000 above the amount handed over last year. They were distributing £13,283 to extra-metropolitan hospitals, including £5000 given by the British Charities Association for that particular purpose. From 1899, when it was established, until now, the League had given to the King's Fund £415,034, and to the extra-metropolitan hospitals £100,697; making a grand total, which the League had received and distributed to voluntary hospitals, of £515,731.

Grants to Hospitals and Convalescent Homes.

The Chairman of the Distribution Committee (Sir Cooper Perry) presented the report of the committee on the distribution to hospitals (including recovery and convalescent branches) as follows, and moved the adoption of the list of grants. The report stated that the number of hospitals applying for grants is 141, as against 136 in 1926, new applications having been received from the Bermondsey Medical Mission, Croydon General Hospital, Harrow Hospital, Invalid Children's Aid Association, Heart Hospital at West Wickham, and St. Thomas's Cornwall Babies' Hostel. The accounts of all the participating hospitals taken together for the year 1926 showed that, while the total aggregate expenditure continued to increase, income showed a slight diminution, and there was, for the first time since 1922, a small aggregate deficit. The demands on the Committee have therefore continued to grow, and they were glad to have an increase, although a small one, in the amount available for distribution. The total grants recommended in aid of maintenance come to £211,450, as compared with £207,525 last year. The grants towards schemes of capital expenditure amount to £33,550 out of the ordinary distribution, as against £35,475 last year. The Committee are also recommending grants amounting to £34,500 out of the special distribution of the legacies of the late Mr. and Mrs. Wells. The total distribution to hospitals for the year is thus £279,500, besides £2000 to non-hospital convalescent homes. The Distribution Committee have been giving special attention not only to the provision of additional beds for accidents, but also to the question of the best method of securing prompt and efficient medical attendance, in cases of emergency, at hospitals which have no resident medical officer. This question has come before the Fund with increased importance for three reasons: first, the enlargement of the Fund's area, which has brought in several more small suburban hospitals; second, the tendency of such hospitals to grow in size, to take more serious operation cases, and to develop from cottage hospitals into general hospitals; and third, the increasing number of road accidents. Of the general or cottage hospitals with less than 70 available beds, 13 hospitals, ranging from 62 beds to 19, have resident medical officers. But 7 with from 40 to 55 beds are without a resident, as also are 14 with less than 37 beds. To some of these the Committee, while leaving the decision to the hospital, have expressed the view that the time has come for the appointment of a resident. The Distribution Committee have come to the conclusion that the most efficient system at such hospitals is one which includes: (*a*) the establishment of a rota securing the certain and most speedy attendance of one or more of the medical staff; (*b*) the appointment of one (or more) of the medical staff (either permanently or for a definite period) to pay daily visits to the hospital and make himself acquainted with the necessary facts concerning all the cases; (*c*) an arrangement whereby, in connexion with the rota, the member on duty undertakes to be available, or if unavoidably prevented, ensures that another member on the rota shall be available, and notifies the hospital to that effect. The hospital authorities thus always know beforehand who is the available member, and can communicate with him at once.

The Distribution Committee also consider that great importance attaches to the question of providing: (*d*) adequate facilities for taking notes on cases, whether medical or surgical, before deciding on a course of treatment. These conclusions have been notified to the hospitals without residents. Point (*d*) is even more important at these hospitals than at others, because the doctor who sees a patient under (*a*), (*b*) or (*c*) may not be the doctor under whose care he was originally admitted.

Lord Somerleyton (hon. secretary) presented the schedule containing the list of awards to hospitals (including recovery and convalescent branches) as follows:—

*List of Awards.**

	£
Acton Hospital	650
All Saints' Hospital	75
Babies' Hospital (Deptford Fund) (of which £250 towards rebuilding and extension on new site, in accordance with the scheme submitted to the Fund)	275
Baby Clinic Hospital (Kensington)	50
Beckenham Cottage Hospital	350
Belgrave Hospital for Children (of which £250 to deficit on new nurses' accommodation, in accordance with the scheme submitted to the Fund)	1,650
Bermondsey Medical Mission Hospital (towards erection of permanent wards, in accordance with the scheme submitted to the Fund)	50
Blackheath and Charlton Hospital	150
Bolingbroke Hospital (of which £500 towards extension, in accordance with the scheme submitted to the Fund)	2,250
Brentford Cottage Hospital (of which £500 towards rebuilding and extension on new site, in accordance with the scheme submitted to the Fund)	525
British Hospital for Mothers and Babies, Woolwich	550
Bromley Cottage Hospital	150
Carshalton and District Hospital	50
Central London Ophthalmic Hospital	500
Central London Throat, Nose and Ear Hospital	150
Charing Cross Hospital (of which £1,500 towards acquisition of adjoining building, and its adaptation as an extension of the hospital, in accordance with scheme to be submitted to the Fund)	3,500
Chelsea Hospital for Women (including Convalescent Home at St. Leonards)	900
Cheyne Hospital for Children (including Country Branch at St. Nicholas-at-Wade) (of which £100 to deficit on increased accommodation for artificial sunlight treatment and other improvements, in accordance with the scheme submitted to the Fund)	450
City of London Hospital for Diseases of the Heart and Lungs (Victoria Park) (of which £250 towards new surgical block, in accordance with the scheme submitted to the Fund)	3,750
City of London Maternity Hospital	1,250
Clapham Maternity Hospital	300
Croydon General Hospital	500
Dreadnought Hospital (Seamen's) (including Albert Dock Hospital, Hospital for Tropical Diseases, Sanatorium at Liphook, and Convalescent Home at Cudham)	1,525
East End Mothers' Lying-in Home (of which £500 to deficit on acquisition of adjoining building and its adaptation for nurses' quarters, in accordance with the scheme submitted to the Fund)	1,200
East Ham Hospital (of which £750 towards rebuilding as general hospital, in accordance with the scheme submitted to the Fund)	925
East London Hospital for Children (including Convalescent Home at Bognor) (of which £500 to reduce debt)	3,525
Elizabeth Garrett Anderson Hospital (including Recovery Branch at Barnet) (of which £1,000 towards extension, in accordance with the scheme submitted to the Fund)	2,450
Eltham and Mottingham Cottage Hospital	25
Enfield War Memorial Hospital	300
Evelina Hospital	1,100
Finchley Memorial Hospital	300
Florence Nightingale Hospital for Gentlewomen	300
Forest Hospital, Buckhurst Hill	200
French Hospital	350
General Lying-in Hospital (of which £1,000 towards new nurses' home, in accordance with the scheme submitted to the Fund)	1,600
German Hospital	350
Golden-square Throat, Nose and Ear Hospital	200
Gordon Hospital for Fistula (of which £100 towards recent improvements)	150
Grosvenor Hospital for Women	500

* The Distribution Committee desire to draw attention to the fact that it must not be assumed that the reduction or absence of a grant implies dissatisfaction.

	£
Guy's Hospital (of which £1,000 to deficit on recent improvements)	11,500
Hampstead General and North-West London Hospital	2,750
Hanwell Cottage Hospital	50
Harrow Hospital (of which £500 to extension, in accordance with the scheme submitted to the Fund)	650
Hendon Cottage Hospital (of which £100 towards X ray room and sterilising room, in accordance with the scheme submitted to the Fund)	400
Hornsey Central Hospital	150
Hospital for Consumption, Brompton (including Sanatorium at Frimley) (of which £250 towards improvements, in accordance with the scheme submitted to the Fund)	1,100
Hospital for Epilepsy and Paralysis	2,000
Hospital for Sick Children	3,500
Hospital for Women (Soho-square)	1,000
Hospital of St. John and St. Elizabeth	750
Hostel of St. Luke	100
Ilford Emergency Hospital (of which £500 towards extension, in accordance with the scheme submitted to the Fund)	1,000
Infants Hospital	350
Invalid and Crippled Children's Society's Hospital (Canning Town)	500
Invalid Children's Aid Association Heart Hospital, West Wickham (of which £250 towards erection of ward pavilion, in accordance with the scheme submitted to the Fund)	350
Italian Hospital	300
Jewish Maternity Home	50
Kensington, Fulham, and Chelsea General Hospital	100
King Edward Memorial Hospital (Ealing) (of which £1,000 towards extension, in accordance with the scheme submitted to the Fund)	1,450
King Edward VII.'s Hospital for Officers	300
King's College Hospital	7,500
Kingston-upon-Thames Victoria Hospital	100
London Fever Hospital	600
London Homœopathic Hospital (of which £200 towards recent improvements)	1,950
London Hospital (including Recovery Branch at Reigate) (of which £1,000 towards improvements, in accordance with the scheme submitted to the Fund)	16,150
London Jewish Hospital	300
London Lock Hospital (of which £600 to maintenance of Harrow-road Hospital and £100 to maintenance of Dean-street Hospital, and £500 towards the building of an extension of the out-patient department at Dean-street, in accordance with the scheme submitted to the Fund)	1,200
London Temperance Hospital (of which £100 towards recent improvements)	2,100
Medical Mission of the Good Shepherd, Babies' Home (Hoxton)	25
Metropolitan Ear, Nose and Throat Hospital	25
Metropolitan Hospital (of which £1,000 towards new nurses' home, in accordance with the scheme submitted to the Fund)	5,000
Middlesex Hospital (including Convalescent Home at Clacton) (of which £1,500 towards reconstruction, in accordance with the plans submitted to the Fund)	8,825
Middlesex Hospital Cancer Charity	1,250
Mildmay Memorial Hospital	350
Mildmay Mission Hospital (of which £500 towards nurses' home and operating theatre, in accordance with the scheme submitted to the Fund)	1,400
Miller General Hospital for South-East London (including Convalescent Home at Bexhill) (of which £1,000 towards extension, in accordance with the scheme submitted to the Fund)	4,575
Mothers' Hospital of the Salvation Army (of which £200 to deficit on extension, in accordance with the scheme submitted to the Fund)	800
Mount Vernon Hospital (Fitzroy-square and Northwood)	1,250
National Hospital for Diseases of the Heart (of which £300 to deficit on extension of out-patient department, in accordance with the scheme submitted to the Fund)	600
National Hospital, Queen-square (including Convalescent Home at Finchley)	3,750
Nelson Hospital (South Wimbledon) (of which £250 towards provision of maternity block, in accordance with the scheme submitted to the Fund)	950
Northcourt Hospital and Home for Sick Children (Hampstead) (in consideration of the fact that curable cases are admitted)	100
North Islington Infant Welfare Wards (of which £50 towards additional nurses' accommodation, in accordance with the scheme submitted to the Fund)	100
Norwood and District Cottage Hospital	375
Ormond Maternity Home	—
Paddington Green Children's Hospital (including Convalescent Home at Slough)	1,000
Passmore Edwards Hospital for Wood Green, &c.	100
Phillips Memorial Homœopathic Hospital, Bromley	20
Plaistow Maternity Hospital	500
Poplar Hospital for Accidents (including Convalescent Home at Walton-on-the-Naze) (of which £250 to deficit on provision of children's ward, in accordance with the scheme submitted to the Fund)	475
Prince of Wales's General Hospital (including Convalescent Home at Nazeing) (of which £1,000 to reduce debt)	5,600
Princess Louise Kensington Hospital for Children (of which £500 towards building of new hospital, in accordance with the scheme submitted to the Fund)	525
Queen Charlotte's Maternity Hospital (of which £1,000 towards reconstruction and extension, in accordance with the scheme submitted to the Fund)	2,500
Queen Mary's Hospital for the East End (including Convalescent Home at Theydon Bois) (of which £1,000 towards new casualty block, in accordance with the scheme submitted to the Fund)	5,200
Queen's Hospital for Children (including Convalescent Home at Bexhill) (of which £250 to reduce debt)	4,050
Royal Dental Hospital of London	250
Royal Eye Hospital	750
Royal Free Hospital (of which £1,500 towards extension, in accordance with scheme to be submitted to the Fund)	6,500
Royal Hospital (Richmond) (of which £50 towards additional nurses' accommodation)	1,050
Royal London Ophthalmic Hospital (of which £750 towards provision of additional nurses' accommodation and wards, in accordance with the scheme submitted to the Fund)	3,250
Royal National Orthopædic Hospital (including Country Branch at Stanmore) (of which £500 to reduce debt and £1,000 towards extension of country branch, in accordance with the scheme submitted to the Fund)	4,500
Royal Northern Hospital (including Royal Chest Branch in City-road, Recovery Branch at Southgate, and Convalescent Home at Clacton) (of which £1,000 to reduce debt and £1,000 towards acquisition of adjoining site, in accordance with the scheme submitted to the Fund)	9,700
Royal Waterloo Hospital for Children and Women (of which £500 towards new nurses' accommodation, in accordance with the scheme submitted to the Fund)	3,000
Royal Westminster Ophthalmic Hospital (of which £1,000 towards removal and extension, in accordance with the scheme submitted to the Fund)	1,400
St. Andrew's Hospital, Dollis Hill (of which £300 towards new nurses' home, in accordance with the scheme submitted to the Fund)	550
St. Bartholomew's Hospital (of which £1,000 towards new operating theatres, in accordance with the scheme submitted to the Fund)	6,000
St. Columba's Hospital	400
St. George's Hospital (including Recovery and Convalescent Branch at Wimbledon) (of which £250 towards X ray improvements)	7,900
St. John's Hospital (Lewisham) (of which £100 towards reconditioning of electrical and massage department)	1,100
St. John's Hospital (Twickenham)	100
St. John's Hospital for Diseases of the Skin	325
St. Luke's Hospital for Advanced Cases (of which £100 to deficit on new buildings)	400
St. Mark's Hospital (of which £250 to deficit on extension, in accordance with the scheme submitted to the Fund)	500
St. Mary's Hospital (of which £750 towards extension, in accordance with the scheme submitted to the Fund)	6,750
St. Mary's Hospital for Women and Children (Plaistow) (of which £1,000 towards new out-patient department, in accordance with the scheme submitted to the Fund)	3,000
St. Monica's Home Hospital	125
St. Paul's Hospital	50
St. Peter's Hospital for Stone (of which £200 towards extension, in accordance with the scheme submitted to the Fund)	550
St. Saviour's Hospital for Ladies of Limited Means (Osnaburgh-street)	125
St. Thomas's Hospital (of which £1,000 towards first stages of new out-patient department, in accordance with schemes submitted to the Fund)	11,000
St. Thomas's Cornwall Babies Hostel	20
Samaritan Free Hospital for Women (including Convalescent Home at Amersham)	1,300
Santa Claus Home	50
Seamen's Hospital Society (*see* Dreadnought Hospital)	—
South-Eastern Hospital for Children (Sydenham) (of which £250 to deficit on new nurses' home, in accordance with the scheme submitted to the Fund)	1,050
South London Hospital for Women (of which £1,000 towards new out-patient department, in accordance with the scheme submitted to the Fund)	2,000
Stoke Newington Home Hospital for Women	50
Streatham Babies' Hospital (of which £100 towards removal to new building, in accordance with the scheme submitted to the Fund)	120
University College Hospital	7,500
Victoria Cottage Hospital (Barnet)	100
Victoria Hospital for Children (including Convalescent Home at Broadstairs)	2,450
Walthamstow, Wanstead, and Leyton Children's and General Hospital (of which £750 towards extension, in accordance with the scheme submitted to the Fund)	1,650
Weir Hospital, Balham	75
West End Hospital for Nervous Diseases	1,600
Western Ophthalmic Hospital	350
West London Hospital (of which £250 towards additional nurses' accommodation, in accordance with the scheme submitted to the Fund)	5,750
Westminster Hospital	5,000
Willesden General Hospital (of which £250 to reduce debt and £500 towards extension, in accordance with the scheme submitted to the Fund)	2,750

	£
Wimbledon Hospital (of which £250 towards provision of children's ward, in accordance with the scheme submitted to the Fund)	675
Winifred House Invalid Children's Convalescent Hospital Home	25
Woodford Jubilee Hospital	75
Woolwich and Plumstead Cottage Hospital	25
Woolwich and District War Memorial Hospital (of which £315 towards preliminary expenses of maintenance)	390
Total	£245,000

Lady Hall having seconded, the motion was put and carried unanimously.

Distribution to Convalescent Homes.

The Chairman of the Distribution Committee (Sir Cooper Perry) then presented the report of the Committee on the distribution to convalescent homes not attached to particular hospitals as follows, and moved the adoption of the grants.

The report stated: The President and General Council have this year fixed the sum available for distribution amongst convalescent homes not attached to any particular hospital in London at £2000, being the same amount as last year. The number of applications eligible for consideration amounted to 45, as compared with 44 last year.

Mr. Leonard Cohen (hon. secretary) presented the schedule containing the list of awards to convalescent homes not attached to particular hospitals as follows:—

	£
All Saints' Convalescent Hospital (Eastbourne) ..	200
All Saints' Convalescent Home (St. Leonards) ..	25
Baldwin Brown Convalescent Home (Herne Bay) ..	20
Beau Site Convalescent Home (Hastings)	25
Brentwood Convalescent Home for London Children (Brentwood)	25
Bushey and Bushey Heath Children's Convalescent Home (Bushey)	20
Catherine Marsh Convalescent Home (Worthing) ..	50
Children's Convalescent Home (Beaconsfield)	25
Children's Cottage Hospital (Cold Ash, Newbury) (in consideration of the fact that convalescent cases are admitted)	15
Children's Ophthalmic Convalescent Home (Mayfield)	10
Convalescent Home for Poor Children (St. Leonards) ..	100
Convalescent Police Seaside Home (Hove)	75
Friendly Societies' Convalescent Home (Herne Bay) ..	25
Home for Invalid Children (Brighton)	50
Invalid Children's Aid Association Homes—	
Brooklands Home (Worthing)	25
Clevedon Sanatorium (Broadstairs)	25
Convalescent Home for Children (Hawkenbury, Tunbridge Wells)	50
Countess Brownlow Home (nr. Berkhamsted) ..	25
Edgar Lee Home (Willesden)	25
Florence Emma Home (Dover)	25
Hamilton House (Seaford)	50
St. Michael's (Southbourne)	15
London and Ascot Priory Convalescent Home (Bracknell)	75
London and Brighton Female Convalescent Home (Brighton)	75
London Homœopathic Convalescent Home (Eastbourne)	25
Mental After-Care Association Homes (Fairlight) ..	150
Metropolitan Convalescent Institution (Bexhill, Broadstairs (Children) and Walton)	100
National Sunday School Union Convalescent Home (Clacton)	50
Pawling Home Hospital for Children (Barnet) (in consideration of the fact that convalescent cases are admitted)	10
Ranyard Mission Convalescent Home (St. Leonards) ..	50
St. Andrew's Convalescent Home (Folkestone) ..	75
St. Andrew's Convalescent Hospital (Clewer)	25
St. John's Home (Kemp Town, Brighton)	50
St. Luke's Home (Children) (Woodley, Reading) (in consideration of the fact that convalescent cases are admitted)	25
St. Mary's Convalescent Home (Birchington)	50
St. Mary's Home for Children (Broadstairs) (in consideration of the fact that convalescent cases are admitted)	75
St. Michael's Home for Men and Women (Westgate) ..	50
Seaside Convalescent Hospital (Seaford)	50
Suffolk Convalescent Home (Felixstowe)	50
Sunshine Convalescent Home for Children (Felpham, Bognor)	10
Surgical Home for Boys (Banstead) (in consideration of the fact that convalescent cases are admitted) ..	25
Tilford Convalescent Home for Children (Farnham) ..	50
Victoria Home for Invalid Children (Margate) (in consideration of the fact that convalescent cases are admitted)	25
Total	£2000

The motion, having been seconded by Sir Cuthbert Wallace, was then put and carried unanimously.

On the motion of Lord Mildmay, seconded by Mr. George Roberts, it was resolved that the cheques for the grants should be posted on Friday, Dec. 16th.

Wells' Legacies Distribution: List of Grants to December, 1927.

The Chairman of the Distribution Committee (Sir Cooper Perry) then presented the report of the Committee on the special distribution to hospitals in aid of extensions and improvements, out of the Wells' legacies to date, and moved the adoption of the list of grants.

This report stated: The total this year is £34,500 distributed to hospitals, besides £12,000 set aside, with the approval of the Council in May last, for grants in aid of pensions scheme for nurses and hospital officers. The amount allocated in the four years 1924 to 1927 is £224,250. The total amount of the legacies is not yet definitely known, but it is estimated that the balance as yet unallocated will amount to rather more than £20,000. The Committee hope to be in a position to submit a final list at the annual meeting of the Council in the spring. The grants during 1927 will assist in the provision of more than 180 additional beds, besides facilitating other forms of structural extensions and improvements. The total number of additional beds provided by the schemes to which Wells grants have been made during the four years is 1306. These include 144 beds reserved for accident cases.

Major H. A. Wernher (hon. secretary) presented the schedule containing the list of awards to hospitals (January to December, 1927) in aid of extensions and improvements, out of the Wells' legacies for the year as follows:—

British Hospital for Mothers and Babies, Woolwich.—£2000 towards second stage of new hospital; £1000 payable when the work is begun, and £1000 when the work is finished.

Central London Ophthalmic Hospital.—£500 to extension, increasing the number of beds from 40 to 52; payable when the work is begun, on condition that £6000 is raised by March 31st, 1927.

East Ham Hospital.—£2000 towards rebuilding as a general hospital, to be the last £2000 required to pay for the cost of the building; making, with £5000 granted in 1926, a total of £7000.

General Lying-in Hospital.—£1000 towards rebuilding of adjoining house as nurses' home and antenatal and postnatal departments; payable when the work is begun.

Harrow Hospital.—£500 towards extension, increasing the number of beds from 36 to 60, with accommodation for a resident medical officer; to be the last £500 required to render the extension free of debt.

Hospital for Epilepsy and Paralysis.—£500 towards extension, increasing the number of beds from 82 to 102; payable when the work is begun.

Invalid Children's Aid Association Heart Hospital, West Wickham.—£500 towards erection of open-air wards at new hospital, increasing the number of cots from 30 to 80.

Middlesex Hospital.—£10,000 as a third grant to reconstruction scheme; making, with £10,000 in July, 1925, and £10,000 in December, 1925, a total of £30,000.

Princess Louise Kensington Hospital for Children.—£1000 towards second stage of new hospital, increasing the number of cots from 15 to 55, payable when the work is begun.

Royal Free Hospital.—£5000 towards the scheme for the development of the hospital in celebration of its centenary; £2500 payable when the work is begun, and £2500 to be the last £2500 required to complete the first £100,000 raised by the appeal.

Royal Westminster Ophthalmic Hospital.—£2000 towards rebuilding on new site, increasing the number of beds from 42 to 85; £1000 payable at once, and £1000 to be the last £1000 required to render the new hospital free of debt.

St. Bartholomew's Hospital.—£7500 towards new surgical block, payable when the work is begun.

St. Mary's Hospital, Plaistow.—£2000 towards first stage of new out-patient department; £1000 payable when the work is begun, and £1000 to be the last £1000 to render the first stage free of debt.

Sir William H. Bennett having seconded, the motion was put and carried.

Pensions for Nurses and Hospital Officers: Present Position of the Scheme.

In the absence of Lord Donoughmore (Chairman of the Management Committee), the Vice-Chairman of the Committee (Lord Somerleyton) presented a report of the committee on the scheme of pensions for nurses and hospital officers, as follows:—

It stated that the Management Committee are informed that arrangements are being made to bring the scheme into operation on Jan. 1st under the title of "Federated Superannuation Scheme for Nurses and Hospital Officers (Contributory)." The scheme has so far been adopted by 89 hospitals in London, representing 12,176 beds out of a total of about 14,700. A large number of hospitals throughout the country are known to be awaiting particulars of the insurance companies' quotations, which are on the point of being issued by the Provisional Council. The details of the scheme in its present form differ only very slightly from those of the draft scheme as adopted by the hospitals represented at the Mansion House Conference in 1926.

His Royal Highness having briefly acknowledged a vote of thanks, the proceedings terminated.

On the same day His Royal Highness presided over the annual meeting of the League of Mercy, and read the following message from the King: "The Queen and I are gratified to know that the League of Mercy is able to render a satisfactory account of its work during the past year; and to learn that the contributions which the League has made to voluntary hospitals in London through King Edward's Hospital Fund and outside London by its own awards now exceed £500,000. In founding King Edward's Hospital Fund and the League of Mercy it was the aim and object of King Edward to maintain hospitals on the voluntary system, and we congratulate supporters of the League of Mercy on the successful results of their endeavours in this direction."

Reviews and Notices of Books.

GLYCOSURIA AND DIABETES.

Modern Methods in the Diagnosis and Treatment of Glycosuria and Diabetes. Fourth edition. By HUGH MACLEAN, M.D., D.Sc., F.R.C.P., Professor of Medicine, University of London, and Director of the Medical Clinic, St. Thomas's Hospital; Honorary Consulting Physician to the Ministry of Pensions; Consulting Chemical Pathologist to St. Thomas's Hospital. London: Constable and Co., Ltd. 1927. Pp. 212. 12*s.*

THE appearance of a fourth edition shows the demand which exists for books on the treatment of diabetes mellitus. No important changes have been made, but additional details about the value of insulin, as a result of the experience of the last four years, have been added. The dangers of insulin are described, together with the remedies which make them negligible. A word of warning is given about the treatment of patients who have symptoms of angina pectoris. The diet tables have been improved, but the reader must still be prepared to make simple calculations to ascertain how a food which contains carbohydrate may be substituted for any other food. A note on the dangers of so-called diabetic foods is timely, as harm is being done to patients who imagine that they are eating carbohydrate-free food. The observations on the results of insulin treatment show the range of improvement achieved in the condition of the patients. The statement that insulin of double strength has recently been put on the market by one firm requires amendment, for we believe that it was prepared by several firms as soon as the Medical Research Council agreed to its issue. It would seem that Prof. MacLean still uses Fehling's solution for sugar-testing, whereas other writers in this country, as well as in Canada and the United States, regard Benedict's qualitative solution as more accurate and easier for the patient to use.

The Diabetic Life. Its Control by Diet and Insulin. Third edition. By R. D. LAWRENCE, M.A., M.D., M.R.C.P. Lond., Chemical Pathologist and Lecturer in Chemical Pathology, King's College Hospital. London: J. and A. Churchill. 1927. Pp. 185. 8*s.* 6*d.*

IN a third edition of this book which has appeared within the year the author has not changed his practice in any essential degree, but there are a certain number of additions. An important chapter has been added on the new synthetic preparation synthalin, which can be taken by mouth; the results obtained were unsatisfactory. The diet tables, calculated on the 5-g. principle originally introduced by Leyton, are most valuable for the patient. Dr. Lawrence has been estimating the different amount of carbohydrate present in vegetables and fruits, and has introduced some of this work, although it is disappointing not to be able readily to identify the figures which he has altered. We would suggest the issue of pp. 114–167, which deal with diet and menus, in a separate cover for the use of wives or housekeepers who may be alarmed by the medical details which are necessary for the patient himself.

A Primer for Diabetic Patients. A Brief Outline of the Treatment of Diabetes with Diet and Insulin, including Directions and Charts for the Use of Physicians in Planning Diet Prescriptions. Third edition. By RUSSELL M. WILDER, M.D. Section on Nutrition, Division of Medicine, Mayo Clinic. London: W. B. Saunders Company. 1927. Pp. 134. 7*s.* 6*d.*

THIS primer which is mainly intended for the patient has been little altered in the third edition. It is written in simple language, and should be easily understood. The recipes for various dishes are good, but the diet tables involve more calculation than the majority of patients are able and willing to supply. Useful features of the book are the rules for the avoidance of damage to the feet and the help given in the treatment of complications, minor and major.

A TEXT-BOOK OF PRACTICAL THERAPEUTICS.

Twentieth edition. By HOBART AMORY HARE, B.Sc., M.D., LL.D., Professor of Therapeutics in the Jefferson Medical College, Philadelphia; Physician to the Jefferson College Hospital. London: Henry Kimpton. 1927. Pp. 1094. 36*s.*

IT is an ambitious conception to combine in a single volume a text-book of pharmacology, a handbook of general nursing and an index of treatment; yet such is the purpose of this book, and the fact that it has now reached its twentieth edition testifies to the success with which the author has carried out his project. The title is an accurate description of the contents which are essentially practical, and special methods of treatment, such as massage, which cannot be carried out by the practitioner himself, are not touched upon.

The book opens with a treatise on general therapeutic considerations, which contains in addition to a concise summary of the objects and limitations of medical treatment, directions for dosage and prescribing and tables of weights and measures. The next section is devoted to drugs, and the subject is approached essentially from the practical side so that, though theoretical considerations are by no means neglected, emphasis is laid on the uses of drugs, the methods of administration, and the forms in which they are put on the market. The list of drugs is thoroughly up to date, and includes a number of proprietary preparations of proven efficacy or whose value is still sub judice, in addition to official remedies.

Part III. is of particular value. In it are described those methods other than drugs that have a place in therapeutics, but which are usually left to the nurse to carry out, and too often are neglected by the student. The theory and indications for serum and vaccine therapy are well described, in addition to the uses and methods of applying such remedies as hot and cold packs, leeches, and poultices. There follows a short chapter on feeding the sick, with directions for making such articles as bran biscuits for diabetics, barley water, and peptonised milk. The remainder of the book takes the form of an index of treatment for those conditions that can be benefited by the therapeutic measures previously described. Thus abdominal emergencies are only dealt with from the point of view of expectant treatment, the indications for obtaining surgical aid being briefly outlined, and cancer, fractures, and similar purely surgical complaints are not mentioned at all. Although this section is compressed into little more than 300 pages, it is very comprehensive, and sufficiently detailed accounts are given of the various procedures to enable them to be carried out efficiently. Theorists might consider such headings as "Indigestion" and "Heart Disease" to be too vague a basis for accurate therapeutics, but adequate directions for differential diagnosis are given in the text, and the arrangement certainly makes for simplicity.

Works of this type do not claim to give full details of complex problems, such as the treatment of diabetes mellitus, and cannot replace larger and more specialised text-books. Their function is that of an encyclopædia which provides in the minimum of bulk the maximum of information on a wide range of subjects. The present volume fulfils this function admirably. It has been brought up to date, and its value as a book of reference is enhanced by two indices, one arranged according to remedies, and the other according to diseases.

MENTAL AND SCHOLASTIC TESTS.

By CYRIL BURT, M.A., D.Sc. Oxf., Psychologist, Education Officer's Department, London County Council. London: P. S. King and Son, Ltd. 1927. Pp. 432. 18*s*.

THE appearance of a third impression of Dr. Burt's monumental work is in itself an indication that it has met the requirements of many who had felt the need for a reliable scale of intelligence tests, standardised for the examination of children born and bred in England. The Binet scale had come from France, several revisions of it came from America, but until the first edition of this book was published there was no definitely English revision, and it had been carried out with so great care and ability that examiners, particularly of children suspected to be defective, have felt every confidence in using it.

In one respect Dr. Burt has departed from the policy of most revisers, and notably of Terman, whose Stanford revision has also found wide acceptance here, in that he has deliberately declined to add new tests to those of the Binet scales of 1908 and 1911. He admits that many tests introduced by Terman and others are valuable, but in favour of his own decision pleads in excuse the desirability of uniformity for comparative purposes. As, however, other revisers have so largely abandoned uniformity, this argument appears to lose its point, and to the examiner whose concern it is to diagnose as accurately as possible the mentality of a child, the plea of uniformity makes an appeal if it deprives him of the use of admittedly good tests, and at the same time compels him to use some admittedly worthless tests. Dr. Burt's criticism of Terman for retaining valueless tests renders him liable to an obvious retort. One has to admit, however, some point in his objection to patchwork revisions, and in his contention that what is required for real scientific work is a new scale, or series of scales, a task which would call for the coöperation of an army of workers. Dr. Burt is eminently qualified to be the generalissimo of such an army. His educational scales, which must have entailed great labour in their preliminary testing, have a much wider application than to the examination of the mentally defective. His analysis of the causes of backwardness in specific school subjects is illuminating. Of special value in diagnosis are his pictorial illustrations of the type of drawing of a man to be expected at different ages. These are based on an average of actual specimens and constitute an invaluable and unique age-scale of achievement in this direction.

The practical criterion adopted for certification of defectives for educational purposes, according to Dr. Burt, should be the amount of accommodation available in existing special schools. This comes with something of a shock to his fellow-workers, although such a criterion would doubtless be very comforting to local authorities whose provision of special schools was meagre, but who could claim that 100 per cent. of their defectives were in special schools. When the Board of Education puts upon authorities the duty of "ascertainment," its intention is that ascertainment should determine accommodation, and not that accommodation should determine ascertainment. Dr. Burt's concession to the practical here surely goes too far. His insistence on the distinction between defectives from the point of view of life and defectives who are only so for educational purposes is necessary, but too often forgotten, although to the school medical officer it is a commonplace. Dr. Burt estimates that one-third of the special school-children are of the latter type, and will grow up capable of managing their practical affairs without supervision. He merely suggests the possible impropriety of calling them defectives at all, but the necessity for their special education remains, whatever the label.

This book will remain a standard one on its subject until Dr. Burt's ideal scale is nearer fruition.

DIATHERMY.

Second edition. By ELKIN P. CUMBERBATCH, M.A., B.M. Oxf., D.M.R.E. Camb., M.R.C.P., Medical Officer in Charge, Electrical Department, St. Bartholomew's Hospital. London: William Heinemann (Medical Books), Ltd. 1927. Pp. 332. 21*s*.

DIATHERMY, both in its medical and surgical applications, is of increasing importance to the practitioner; he will welcome the new and revised edition of a book whose author is well known as an authority on the subject, and as one who has done much original work in connexion with it. Dr. Cumberbatch has a gift of lucid exposition of electrical matters, and it would scarcely seem possible to read the earlier section of this book without acquiring a clear understanding of the underlying electrical phenomena upon which diathermy depends. In a later section typical machines of British, German, French, American, and Dutch origin are fully described and illustrated, with an appendix in which the factors governing the choice of a diathermy generator are explained, and information as to maintenance is given. The following chapter deals with the distribution of the diathermy current in the tissues when it is passed through the body. This subject is discussed in the light of experiments made by Prof. Lloyd Hopwood, in which the current was made to traverse variously shaped solid masses of agar or gelatin dissolved in saline solution. Thermometers were thrust into the masses at suitable points to ascertain the rise of temperature, which is, of course, proportional to the current density. The section on "medical" diathermy opens with an account of the methods of application, types of electrodes used, and dosage, and sets out with great clearness the precautions which must be taken if burns are to be avoided. Details are given of the conditions in which medical diathermy is found to be of use, with notes of actual cases; of special interest is the account of the author's technique for diathermy of the urogenital tract in both sexes, with special reference to gonococcal infections. Dr. Cumberbatch's

successful pioneer work in this direction is well known. The final chapters of the book are devoted to high-frequency currents in surgery. As the author points out, there are several ways of coagulating, or even excising, malignant growths with the aid of heat generated within the tissues from the passage through them of a high-frequency current, but only one of these can strictly be called "diathermy." For this reason he prefers to use the general term "electrothermic methods of surgery."

The book is well produced and illustrated. It will be of value alike to the electrotherapeutist, the physician, and the surgeon. It can also be recommended to those studying for a diploma in radiology and electrology.

COMMON DISORDERS AND DISEASES OF CHILDHOOD.

Fifth edition. By G. F. STILL, M.D., F.R.C.P., Physician, King's College Hospital; Consulting Physician, Hospital for Sick Children, Great Ormond-street. London: Humphrey Milford, Oxford University Press. 1927. Pp. 1032. 30*s*.

THE thorough revision which this popular text-book underwent three years ago has left comparatively little room for material change in the present edition, but a number of chapters, such as those on infant feeding, nervous children, and nephritis, contain minor additions and alterations. Banana-pulp feeding is included among the therapeutic measures which the author has found useful in the treatment of marasmus. Dr. Still does not share the dislike of the use of lactose in infant feeding which has been evident in some recent publications; he regards lactose, in fact, as less laxative than any of the cane sugars. The principal addition to the book consists of three new chapters on vomiting, "pink disease," and cretinism. The first of these deals in some detail with the differential diagnosis and treatment of vomiting, stress being laid on the common occurrence of nervous factors in the ætiology of this symptom. An extremely interesting chapter on erythrœdema contains a description of its symptomatology, and a critical discussion on the exact nature of the disease. The author maintains an open mind on this question, but suggests as the most likely cause an intestinal toxæmia which produces a secondary peripheral neuritis.

This book is already a favourite both of students and practitioners, and its usefulness to them will be further increased by the additions which have been made to it.

VARICOSE VEINS.

Le traitement des varices. By Prof. J. A. SICARD and Dr. L. GAUGIER. Paris: Masson et Cie. 1927. Pp. 102. Fr.12.

THE injection treatment of varicose veins is now undergoing an extensive trial. In order that such a test should be a fair one, it is essential for the investigator to know the relevant work which has been done on the subject. In this little book he will find all the information he wants. The authors speak with the authority of pioneers, and their work has placed the sclerosing method of treatment upon a scientific and rational basis. This monograph is strongly recommended as a guide to any practitioner who proposes to adopt this method of treating varicose veins.

JOURNALS.

INDIAN JOURNAL OF MEDICAL RESEARCH. Vol. XIV., No. 2, October, 1927.—Two articles by J. A. Sinton contain further studies on malaria, with special reference to the action of "Peracrina 303," and intravenous injections of stovarsol, both of which methods proved unsatisfactory. The same writer with G. Covell, has found that the morphology of the buccal cavity of anophelines when macerated in potash constitutes a valuable aid to classification. H. D. Acton writes on porokeratoses and acquired angiomata or sarcoids; B. B. Bramachari on the prevalence of *Vibrio choleræ* in some of the endemic areas of Bengal; J. Cunningham contributes a note on the degeneration of vaccine lymph on passage through the same vaccinifer; T. A. Hughes and D. L. Shrivastava have investigated tropical cirrhosis of the liver, with special reference to the fragility of the red blood cells, carbohydrate intolerance in muscular dystrophy, and renal œdema. R. McCarrison publishes further work on the experimental prevention of stone in the bladder in rats. E. Muir writes on the effect of kala-azar in leprosy. A valuable and practical paper is the one by H. E. Shortt, Sribas Das, and Chirarji Lal on the finding of parasites in the peripheral blood of cases of kala-azar by direct microscopical examination.

Reports and Analytical Records.

VITAMIN CHOCOLATE.

(J. LYONS AND CO., LTD., CADBY HALL, KENSINGTON, W. 14.)

WE have received samples of Messrs. J. Lyons and Co., Ltd., vitamin chocolate and have submitted the claims of the manufacturers to investigation.

To test the vitamin A content, rats weighing from 40 g. to 50 g. were given a diet consisting of—

Caseinogen "vitamin-free"	15 g.
Dextrinised rice-starch	70 g.
Agar-agar	2 g.
Salt mixture (Steenbock's)	5 g.
Dried yeast	8 g.

The dry mixture was irradiated for half an hour under a quartz mercury-vapour lamp running at 2·5 ampères 130 volts. For this it was spread out in thin layers, about 100 g. over an area of 4 sq. ft. It was stirred and re-spread after a quarter of an hour's irradiation. By this process adequate quantities of vitamin D were generated in the ration. When rats which have become steady in weight on such a diet are given a substance containing vitamin A, their growth response is deferred until, presumably, the various disorders due to the deficiency are cleared up. To test the vitamin A content of the chocolate 14 rats were used in all. A comparison was made (*a*) with a sample of best English dairy butter and (*b*) with an average sample of cod-liver oil. For the former test a litter of nine rats together with one extra rat (not strictly comparable) were used. The chocolate and butter were tested in doses of 0·05 g., 0·1 g., and 0·2 g. respectively. The curve of growth of the rats at each level of feeding indicated that the chocolate was slightly richer in vitamin A than the sample of butter used. The comparison made with the cod-liver oil indicated that the chocolate had about one-fiftieth of the vitamin A activity of the oil.

To test the vitamin D content, rats weighing from 55 to 70 g. were given a diet consisting of—

Whole yellow corn ground	76 g.
Wheat gluten	20 g.
Calcium carbonate	3 g.
Sodium chloride	1 g.

Rats on this diet develop rickets in three to four weeks provided they have not made large reserves of vitamin D in their pre-experimental feeding. One litter of rats was used for the comparison between the chocolate and the same sample of butter as used in the vitamin A test. Doses of 0·1, 0·2, and 0·4 g. of each were used daily throughout a ten days' test period subsequent to the four weeks' preparatory period, and the degree of calcification induced indicated that the chocolate was slightly richer in vitamin D than the sample of butter with which it was compared. It must be understood, however, that butter cannot be considered a *rich* source of this factor, as even the best summer butters have only about one-eightieth the vitamin D activity of an average cod-liver oil.

THE LANCET.

LONDON: SATURDAY, DECEMBER 24, 1927.

CIVIL FLYING.

THE statement that within the past two and a half years a British company, Imperial Airways, has carried over 52,000 passengers without serious accident is testimony to the fact that civilian flying is now as safe as any other form of locomotion. This must, in part at least, be attributed to the careful medical selection and periodic re-examination of civilian passenger-carrying pilots. The conditions governing these examinations were originally laid down at the Peace Convention in 1919. Since that date they have been subject to systematic revision by the Medical Subcommittee of the International Commission for Air Navigation, and at their thirteenth session held in Rome last October the first general review of the methods of medical examination and the minimal standard of requirements was completed. These standards vary somewhat for what may perhaps with convenience be called the owner-flier and the air-pilot. In respect of the latter or public licence the regulations have now been amended to include the examination of women. Save in respect of peculiarities due to her sex, it will be noted that no particular allowance has been made for a lessened physical efficiency in women, except the admission of a lessened respiratory capacity. In certain quarters there has been a disposition to look upon this as an injustice to women, because it is felt that a woman of slight build cannot be expected to attain the same degree of bodily efficiency as a full-grown man. On this account small women may possibly, it is thought, be debarred from flying. Such, however, is not the case. What is overlooked is the fact that the small woman of the white race is not being examined under standards which apply only to men of her own race, but under such as apply to men of all the races of the world. The conditions, therefore, are such that every really healthy woman finds a reasonable chance of passing, provided she is endowed with the physical attributes which have been found in successful male pilots.

What are in fact the attributes of successful flying has been the subject of inquiry for some years, and is still being studied. The successful pilots of the past have set the standard of the present, and the successful pilots of the present will dictate the standards of fitness of the future pilots. Such a policy makes increasingly for safety in the air, since any special bodily condition be found associated with lack of success in flying, that condition is noted and the regulations modified accordingly. We speak of "condition" rather than "defect," since fitness for flying duties in respect of public transport and hands requires special qualities, the absence of which is not necessarily be termed defects in terms of everyday life. For example, the aeroplane pilot must possess a very high degree of accuracy of visual judgment if he is to fly, and particularly to land, an aeroplane successfully, although he could get on quite well in ordinary life with far less accurate visual perception. He must not be liable to "air-sickness," although such a liability would hamper him but little in everyday life on the ground. He must possess the general nervous stability which will keep him cool in emergency and will, even after long hours of flying or after flights in the rarefied air of high altitudes, leave him alert and controlled. He must be endowed with such respiratory and circulatory efficiency that he can resist the effects of the cold and rare air of altitudes. Above all, he must not suffer from any disability likely to cause sudden incapacity in the handling of aircraft. Nevertheless, the medical requirements are not really very severe. When the standards of efficiency are compared with those found in the average healthy young man or woman who has never flown it is found that they are such as can be passed with relative ease by those who have taken the trouble to keep fit and to lead a healthy life, provided they are blest with keenness of perception and aptitude for performance of coördinated limb movements. On this account, those who have all-round aptitude for sports and games, rather than especial prowess in one only, and have also the power of endurance, are the most likely (although not necessarily the only) subjects to become efficient pilots. In these days of women's athletic prowess there is little likelihood of many women aerial aspirants failing to pass the medical requirements laid down for them.

Each nation is at liberty to raise the minimal requirements laid down by the International Commission, and the requirements of physical efficiency of the male British pilots represent a high standard. A definite physical index is allotted as the result of each examination, so that at subsequent examinations an estimate can be formed as to whether there has been deterioration or otherwise as a result of the number of hours flown. The keeping of this index has proved of great service as a basis for the number of hours which can be flown without medical re-examination. Until recently pilots were to be re-examined every six months or after flying 250 hours. At the recent session of the International Commission it was decided to recommend, in addition to the six-monthly overhaul, re-examination when the pilot has flown 125 hours in any 30 consecutive days. The high standard of efficiency maintained by the British pilots is a matter for congratulation. The conditions for private flying are less stringent. Broadly speaking, any average first-class life can pass this examination provided he has a visual acuity for each eye of 6/9, without or with correction, an adequate degree of hearing, and suffers otherwise from no condition capable of causing a sudden disability. A recent provision, however, enables an owner-flier who is suffering from some slight defect, which precludes him from attaining the higher standard, to obtain the public licence after having given proof of his skill on his own machine.

CORONARY RESERVE IN MICE AND MEN.

ONE of the most surprising facts disclosed by recent work on the physiology of muscular exercise is the extent of the cardiac reserve and the enormous output which the heart is able to attain during severe exertion. This can be estimated from measurements of the oxygen intake. The oxygen consumption of an average man at rest is about 250 c.cm. per minute, and since a litre of blood will carry about 200 c.cm. of oxygen, from which the tissues extract about 35 per cent. when metabolism is basal, the estimated

output of the left ventricle at rest is about 4 litres per minute. During severe physical exertion such as rowing Prof. A. V. HILL [1] has shown that the oxygen intake may actually amount to 4·4 litres per minute. Under such conditions the dilatation of the capillary field will no doubt allow of a greatly increased coefficient of utilisation of oxygen (say 70 instead of the normal 35 per cent.). On the other hand, the circulation through the lungs is so rapid that the arterial blood has not time to get fully saturated with oxygen. Assuming that the arterial saturation is 18·5 instead of 20 volumes per cent., each litre of blood might give up 130 c.cm. of oxygen to the tissues. Hence an oxygen intake of 4·4 litres per minute means a circulation-rate of 34 litres per minute, and, taking into consideration the right ventricle as well as the left, the total cardiac output reaches the enormous figure of 68 litres per minute. From the ventricular output and the mean blood pressure it is possible to calculate the work performed by the heart. Allowing a 20 per cent. efficiency, an approximate estimate may be reached of the amount of oxygen which the heart muscle itself would require to perform this work. The result of this calculation shows that, during severe exercise, the heart muscle alone requires as much oxygen as is consumed by the whole body when at rest. So even in the first-class athlete the coronary circulation probably plays a very important part in limiting the amount of physical exertion which can be undertaken. In this connexion it is interesting to compare the conditions in the coronary circulation in man with that in other mammals. The mouse is the smallest living mammal, and this may perhaps be due to its having reached the limit in the matter of coronary flow. In warm-blooded animals the smaller the animal the higher is its basal metabolic rate, and consequently the greater its oxygen requirement. The heart-rate of a mouse is about 700 per minute, and as A. J. CLARK [2] has pointed out, a further increase of heart-rate is probably limited by the impossibility of the coronary circulation supplying the necessary oxygen. In spite of the fact that the mouse's heart is very large relatively to the size of its body, even at rest it is probably working near the limit of its oxygen supply. We are therefore led to conclude that the mouse's proud position as the smallest mammal is likely to remain unchallenged, since its would-be rivals must perish from coronary insufficiency.

SAFE CHILDBIRTH.

DAME JANET CAMPBELL'S report on the Protection of Motherhood [3] which has just appeared, supplements her earlier report on maternal mortality, published in 1924. The present report reviews the existing position of the problem in England and Wales, supplies the latest available statistics, discusses the vexed question of puerperal infection, and sets out in detail the essential provisions of a complete maternity service. It is notorious that the mother's risk in childbirth has not diminished in the way that the risk of the young child has diminished during recent years. The causes of maternal mortality are, it seems, less general and less easily influenced by educational methods than are the causes of infantile mortality. They are more individual and personal, more dependent upon the necessary clinical facilities being available at one particular moment, and hence they are less susceptible to influence by the methods which have contributed to the great reduction in the infant death-rate. This country with its mortality-rate from all puerperal causes of about 4 per 1000 live births occupies a middle position in a geographical sense. Rates are low in Italy, the Netherlands, Norway, and Sweden; high in Germany, Ireland, and Switzerland; and in Australia, where many districts are sparsely populated, the high death-rate is due chiefly to deaths from causes other than sepsis, the same being true of New Zealand. It was hoped that the improved training of midwives and the provision of maternity benefit would be followed by a substantial reduction in maternal mortality in this country, but this has not proved to be the case; nor has the infant mortality-rate in the first week of life shared in the remarkable decline of the total infant death-rate. Our knowledge of the origin and spread of puerperal infection is admittedly limited and inexact. Organised extension of what has hitherto been largely the work of individual investigators on isolated cases is an obvious desideratum, and Sir GEORGE NEWMAN would like to see every maternal death made the subject of competent and thorough medical scrutiny. Dame JANET CAMPBELL would strengthen and improve the maternity service by a scheme of domiciliary midwifery in which many normal deliveries and all maternity nursing would be performed by midwives, albeit always with the active support of the patient's own doctor who would be responsible for antenatal supervision, for the conduct of normal labour if so desired, for the treatment of any complication arising in the course of pregnancy or childbirth, and for the oversight of the lying-in period together with the care of the infant. Her report is not so much addressed to a medical audience as intended to educate public opinion, in order to persuade all concerned to combine in overcoming the practical difficulties of the problem.

It so happens that a remarkable object-lesson in carrying out the principles enunciated by Dame JANET CAMPBELL is available from one of the Dominions. A maternal mortality-rate of nil is recorded by the Victorian Bush Nursing Association, Australia, for the five years 1922–27. Dr. R. MARSHALL ALLAN, who was appointed by the Edward Wilson (Argus) Trust of the University of Melbourne as director of obstetrical research for two years, to inquire into the causes of maternal mortality and morbidity in Victoria, has just issued a report on the work of the Bush Nursing Association in which he admits that, though he had always valued the service of Bush nurses, he was both surprised and gratified at the magnificent record revealed by a study of the details. The number of cases dealt with in the five years under review was 2273, of whom 749 were delivered in hospital, 685 in the patient's home, attended by both doctor and nurse, and 839 in the home, attended by a nurse only. The proportion of cases coming under medical practitioners is steadily rising, this being mainly coincident with the establishment of Bush nursing hospitals; during the five years approximately two-thirds of the cases (63 per cent.) had the advantage of medical attention. Taking Victoria as a whole, the maternal death-rate averages about 5 per 1000 births, with a rate of 3·9 in the rural area of the State. This makes the absence of any maternal death the more remarkable, especially in view of the fact that on various occasions serious complications had to be treated by doctors in private houses, in addition to hospital cases. The population is composed entirely of white people, and woman's life in the Bush, though healthy, involves great hardships. Before the establishment of the Bush Nursing Association many families were 20, 30, or even 40 miles from medical help, and a woman expecting her confinement might have to travel eight hours or more over a rough road before she could obtain advice or help. The Bush nurses work in more than 50 different centres; they are picked women who take a special course of training in obstetrics and infant welfare. Their record shows that antenatal care was given by them to no less than 77 per cent. of the patients, and that they were quick to recognise any departures from the normal, and to report them to a doctor.

[1] Muscular Movement in Man. New York: McGraw Hill Book Co. 1927. 12*s*. 6*d*.
[2] Comparative Physiology of the Heart, Cambridge, 1927.
[3] Ministry of Health. Reports on Public Health and Medical Subjects. No. 48. H.M. Stationery Office. 1927. Pp. 87. 9*d*.

The whole of the factors making for safe childbirth were thus present—well-trained doctors and nurses working together as members of a team, efficient antenatal care, prompt removal to hospital of all cases showing any complication, and sufficient accommodation in well-staffed and well-equipped hospitals. The dwellers in the Bush are not only unusually fortunate in the maternity service provided for them, but unusually intelligent in availing themselves of it. Perhaps, too, there is less impatience among people accustomed to long distances and slow transport, so that the clamour for quick delivery, which Dr. ALLAN spoke of in his earlier report as a serious handicap to young obstetricians in the towns, is absent. As he says, the complete immunity from maternal deaths cannot continue indefinitely, but there is no reason why this enlightened community should not ensure permanently a mortality-rate well below what has almost come to be regarded as the inevitable minimum.

Annotations.

"Ne quid nimis."

"ASYLUM DYSENTERY."

THE high incidence of diarrhœal diseases in mental hospitals as compared with others has been attributed in varying proportion to the degenerate and dirty habits of mental patients, and to the failure of the medical and nursing staff to give them the attention which they would receive in the wards of a general hospital. Although clinical dysentery has been much reduced in recent years, many mental hospitals reporting only a few cases and some none at all, serological investigations have suggested that many more inmates harbour dysenteric bacilli than would be suspected from clinical observation alone. Since the pathologist penetrated to the wards of the asylum much work has been done on the detection of latent dysentery by means of agglutination tests. Mott and Durham [1] proved that the organism generally found in the fæces was a bacillus, though not usually one of a specific dysentery strain. According to the annual reports of the Birmingham Research Laboratories for 1925–27 no less than one-quarter of all inmates gave positive agglutinations with standard organisms, an unexpectedly large number agglutinating the food-poisoning group. Moreover, when the new admissions to the Birmingham mental hospitals were tested serologically it was found that, out of 34 admitted in 1926, no less than 23 per cent. gave positive results. The figure for all patients was 4·7 per cent. F. A. Pickworth, director of the Joint Board of Research for Mental Disease, Birmingham, has recently published a careful investigation into the agglutination of typhoid and dysentery organisms by the sera of mental patients.[2] He concludes, as a result of work on 2000 specimens of fæces and the serum of 100 patients whose fæces had shown aberrant organisms, that the bacilli of typhoid and dysenteric disease behave in a similar way to those of pneumonia; besides setting up acute disease they are frequently present as a chronic infection. The agglutination response is one out of possibly many effects of this chronic infection, but if it is taken as a constant indicator of the strength of the infection the results point to a very attractive hypothesis—namely, that a much larger proportion of the population than has hitherto been supposed is actually infected either with the specific organisms of dysenteric disease or with strains of very similar properties. "Some of these," suggests Dr. Pickworth, "may be attenuated or in symbiosis with other organisms, so that their detection by the usual methods is the exception rather than the rule, and in spite of infection and consequent marked demonstrable changes in the blood the actual disease process is so mild and transient as to be unnoticed or soon forgotten by the individual." If, as is reasonable to assume, a continuous access of these organisms to the blood stream lowers the titre by summation of negative phases, then many obscure chronic illnesses would be explained. "The immediate practical importance," he adds, "is that due values would be attached to any agglutination reaction as indicative of past infection with a possibly dangerous organism, quite apart from actual clinical disease, and these reactions should be regarded as seriously as an actual outbreak of a preventable epidemic disease." The high proportion of positive agglutination results in new admissions to mental hospitals certainly suggests some ætiological relationship between intestinal infection and mental disorder, and confirms the views expressed by Dr. William Hunter and others at the Edinburgh discussion last July.[3] At any rate it largely exonerates the institutions from the blame of negligently allowing the spread of dysenteric disease. Until, however, a widespread research has determined what proportion of the general population give agglutination reactions with these organisms, their rôle in the causation of mental disorder must remain unproven.

[1] Report on Colitis, 1901.
[2] Jour. of Path. and Bact., 1927, xxx., 627.

THE ANTIRACHITIC WAVE-LENGTH.

OUR knowledge of the wave-lengths of light concerned in the synthesis of vitamin D has been advanced a stage further by some researches of Dr. A. F. Hess and Dr. W. T. Anderson.[4] Hess and Weinstock had previously shown that the longest wave-length capable of protecting animals fed on a rachitic diet is in the neighbourhood of 3000 A.U. Following the discovery of the association of cholesterol with the antirachitic factor, the same observers were able to show that the line 3025, or possibly 3130 A.U., of the mercury arc spectrum was the longest wave-length to activate the cholesterol. The observation made by Rosenheim and Webster that ergosterol is the precursor of vitamin D led Hess and Anderson to investigate the region of the spectrum responsible for the activation of this pro-vitamin D. By the use of selective filters and improved apparatus, they have shown that cholesterol (presumably containing ergosterol) can be activated by a band of rays from 2650–2000 A.U., thus proving that rays shorter than the shortest U.-V. rays that ever penetrate our atmosphere are powerfully antirachitic. By further refinements three separate monochromatic rays were investigated, and it was found that 3130 showed slight antirachitic potency, while 3025 and 2800 A.U. of the same intensity possessed far greater antirachitic value. It appears therefore that the antirachitic rays of sunlight are restricted to the small band of rays at the extreme end of its spectrum. In view of the ease with which these rays are absorbed by smoke, dirt, and moisture, these results lend added weight to the plea for smoke reduction in crowded industrial areas where rickets is most commonly encountered.

PELLAGRA IN THE MISSISSIPPI FLOOD AREA.

PELLAGRA is always present in the region recently overflowed by the Mississippi floods—i.e., the States of Tennessee, Arkansas, Mississippi, and Louisiana. In a report [5] issued by the United States Public Health Service, J. Goldberger and E. Sydenstricker examine the conditions in which it normally occurs and the question of its increase in consequence of the floods. There is no doubt, they say, that the incidence of pellagra has very considerably increased, in the first three at any rate of the States named. Its

[3] THE LANCET, Sept. 17th, 1927, p. 606.
[4] Jour. Amer. Med. Assoc., Oct. 8th.
[5] Public Health Reports, U.S. Public Health Service, 1927, xlii., 2706.

frequent occurrence in normal years they attribute to the food habits and peculiar economic conditions which prevail in this cotton-growing area, and they show that the floods have simply operated to increase the economic pressure and to accentuate the pellagra-producing conditions. It is interesting to note that the wide occurrence of deficiency disease is almost always correlated with economic conditions when the basal diet is unsound. The basal diet of the Mississippi basin is often spoken of as the three M's ration—i.e., meat (salt pork), molasses, and meal (maize and some wheat meal), to which additions are made of dairy products, poultry, fresh vegetables, tinned meats, fish and vegetables, according to the means of the people. These means are unfortunately often small and irregular. The people are mostly small tenant farmers, growing a single crop, cotton, which brings in an income only at a certain time of the year. The cotton crop is always regarded as a speculative one, and may result in very different proceeds in different years. When, therefore, as in the last year or two, the cotton-growing industry is in a depressed condition, the people's means wherewith to buy supplementary foods are very small, and pellagra is bound to be on the increase. The bulk of the land being given up to the cotton crop, very few people have garden ground, nor is there much pasture for beasts, so that vegetables and dairy produce are scanty. This year's flood simply served to accentuate these conditions by destroying the cotton crop, drowning the beasts, and ruining such gardens as there were. Goldberger and Sydenstricker go on to make recommendations for the relief of pellagra in this emergency and for its prevention in more normal conditions. They point out that certain foodstuffs are particularly rich in the P.P. or pellagra-preventing factor. They say that when consuming only the basal diet already mentioned 40 to 50 per cent. of people will get pellagra in three to eight months, according to their previous nutritive condition. Lean meat, milk, or vegetables added to the diet will prevent this, and in particular any of the following as a daily addition: ½ lb. of lean beef, a full ½ lb. of dry cow peas, a quart of canned tomatoes, or 1 oz. of dried pure yeast. They therefore suggest that to deal with the increase of pellagra in the flood emergency local health officers should have a supply of dried killed yeast, canned tomatoes, canned salmon, or canned beef at their disposal to serve out to pellagra patients, who on adequate rations should recover in 6–12 weeks. For dealing with the chronic problem in the area they recommend diversification of agriculture to include cattle and dairy farming, the establishment of community dairies, and the cultivation of gardens, and allotments, as being the more easily modifiable of the conditions which are responsible for the wide occurrence of pellagra in this large area.

INFORMATION ABOUT THE TEETH.

SOME years ago the Dental Board decided to start a campaign against disease of the teeth, and has since spent a good deal of money in propaganda by films, lectures, and posters. In pursuance of its plan the Board has now published a small book[1] on the hygiene of the mouth and teeth, primarily intended for teachers, but also available for the general public. In preparing such a book the compilers undertake a difficult task, for it is hard to give an elementary yet faithful account of a technical subject, especially when the real intention is to prevent some disease. One must be dogmatic yet eschew controversy; on the other hand, it is unfair to give the subject a fallacious simplicity by assuming the truth of what are mere conjectures or by ignoring the evidence which seems to weaken the case presented. The anonymous authors of the Board's new book have succeeded admirably. Whilst skilfully avoiding the use of technical terms, they have not made the information too elementary, because the teacher whom it is specially hoped to reach may be regarded as an intelligent and educated class. Where a closely knit argument is necessary to tell the reader what are the factors concerned in caries, they have not hesitated to demand a certain amount of mental concentration and this is as it should be, for knowledge is best remembered if it is not acquired too easily. The anatomical description of the mouth and teeth is excellent and is somewhat detailed, as is also desirable, and there is a good chapter on defective development with pictures showing various forms of dental irregularity. No reader studying the photographs of individuals with what are aptly termed the rabbit, bulldog, and bird types of face can fail to realise the large part played by the teeth and jaws in shaping the features and the heavy handicap which irregularities may impose on the character and destiny of the person so afflicted. The problem of dental caries and its causation is dealt with fairly but perhaps a little too briefly; the authors seem to have skimmed over this subject warily in their laudable desire to avoid taking sides on the question whether the structure of the teeth or the diet is more important in the ætiology. Yet there are certain aspects which might have received a little more attention. It should have been made clear, for instance, that the acid which destroys the enamel is formed from carbohydrates, and that, so far as we know, the bacteria themselves cannot form lactic acid unless provided with a suitable pabulum. It is not without significance that certain carbohydrates, such as glucose are directly fermentable into lactic acid, and that for reasons of economy, glucose is often used in the manufacturing of cheap sweets. We should like to see more stress laid on the evil results of eating sticky carbohydrates, especially sweets, immediately before going to bed, when the muscular and glandular activities of the mouth are reduced to a minimum so that the lodgment of food against the teeth is facilitated. Since this book is intended as a handbook for teachers who will pass on their knowledge in suitable form to those under their influence, it is very desirable that facts like these which are closely bound up with our social habits should receive full attention. Naturally the authors were anxious to keep the book small, but the addition of ten pages or so on the causes and prevention of caries would have added much to its value without increasing its length unduly. These are minor criticisms, however, and it is a high tribute to the skill with which the book is written that there is so little that calls for adverse comment.

[1] The Hygiene of the Mouth and Teeth. London: Dental Board of the United Kingdom. 1927. Pp. 85. 1s. 6d.

LEAD TETR-ETHYL.

THIS interesting compound, in which lead takes the place of the central carbon atom in tetr-ethyl methane, thus $Pb(C_2H_5)_4$, is one of many organo metallic compounds which, when mixed with petroleum spirit, reduce the speed of ignition and thereby decrease the liability to "knock" in internal combustion engines. It has been used for some time in the United States; in fact, its premature introduction led to many distressing cases of lead poisoning among those working with the substance itself. A question in Parliament, answered by the Home Secretary, made public the fact that spirit containing it is now sold in this country. The mixture is coloured to a pale reddish tint, so that it may be easily distinguishable. As it only contains about 0·07 per cent. of the tetr-ethyl it does not present the same danger as the undiluted compound. It should nevertheless, be used with caution, since lead may be absorbed from it into the system either through the skin or, more readily, through the lungs. Experiments on animals with lead tetr-ethyl have shown that there is considerable retention of lead, the excretion being appreciably less than the absorption. The tetr-ethyl compound parts with its lead very readily. A few tenths of a cubic centimetre of the commercial mixture heated with a smaller volume

hydrochloric acid in a sealed tube in a water bath r a few minutes will, when cooled, yield obvious ystals of lead chloride from which the characteristic actions of lead may be obtained. The hydrolysis ith the water of body fluids is doubtless slower, ut judging from the description of cases none the ss effective. This substance will no doubt be used rgely by the medical profession and by their car- ing patients, and if due care is taken very little rm will result. Physicians will, however, be well vised to remember that a new and somewhat sidious form of lead poisoning may occur in subjects ose vocations are not usually associated with this k.

LATE RESULTS OF ARTIFICIAL PNEUMOTHORAX.

TREATMENT by artificial pneumothorax has been vogue so long that a fairly accurate estimate of later effects can now be formed. The sceptic is t so likely to be convinced by the isolated case ated yesterday, however brilliant the result, as series of cases running into three figures and examined after a lapse of several years. In a ies of this kind recently described by Dr. H. Bjelke[1] patients had been given the treatment at his atorium during the past ten years. They were ssified according as their disease was of a chronic l productive or of an exudative character, and rs of their ultimate fate was obtained by corre- ndence. Of the 41 whose disease was exudative, belonged to the second and 36 to the third ban-Gerhardt stage of the disease. As many as were discharged from the sanatorium as improved, le four left it unchanged, and 14 in a worse condi- than on admission. Very few of these 41 patients e found to have survived; only five were still e, and several of these had but recently left the atorium. Thus the conclusion to be drawn from e figures is that when the disease is rapidly pro- sive and exudative the prospects of arresting it rtificial pneumothorax are none too good. Very rent is the outlook for the patient whose infec- is comparatively benign and chronic, for of uch patients in Dr. Bjelke's material as many 8 were found to be still alive. During the first years of the period under review most of the nts selected for pneumothorax suffered from the lative form of the disease, and when a five-year ey was made of their fate, it was found that of 8 treated up to 1922 no fewer than 29 had died, only ten were fit for work. But among the patients treated during the last five years, as y as 53 were found on inquiry to be fit for work. ut two of the 111 patients forming the whole s were sputum-positive before treatment, whereas ere discharged without tubercle bacilli in the m, or indeed any sputum at all. No case of mbolism marred these results.

CEREBRO-SPINAL FLUID PRESSURE.

ARIOUS methods have been used to measure ations in the pressure of the cerebro-spinal fluid e and during its withdrawal by lumbar puncture, hey all have their disadvantages, as Dr. E. S. re points out in a paper in the *Journal of the ican Medical Association* for Nov. 26th. The ary U-tube manometers and aneroids or other of spring-gauge manometers are difficult to se and of doubtful accuracy, especially at low ures. The simple upright tube from the lumbar ure needle, which shows the height to which pinal fluid will rise, is fairly reliable, except the pressure is very high. Dr. Kilgore thinks, ver, that accuracy is specially important in very cases, and to be correct the readings have to en before any fluid is withdrawn. An instrument designed for this purpose was described by Kausch in 1908, but it only permitted the removal, for purposes of examination, of a specimen of fluid mixed with saline, and this is a great disadvantage. In the apparatus which Dr. Kilgore has himself devised these difficulties are overcome. The lumbar puncture needle communicates laterally with one end of a miniature barrel which is divided into two halves by a rubber diaphragm, the other end of the barrel being attached to a U-tube. Before use the instrument is sterilised and filled with normal saline solution. After puncture the stilet is withdrawn, and if it has entered the subarachnoid space the pressure rises in the lumen of the needle, and the rubber diaphragm bulges towards the U-tube. The vertical limb of this tube is raised or lowered until the pressure on the two sides is equal, as shown by the return of the diaphragm to its normal position, and the height of the column of saline indicates the pressure. Cerebro-spinal fluid may then be removed by opening a stopcock on the other side of the needle, and by closing this stopcock the pressure can be measured from time to time in the same way. Dr. Kilgore says that until fluid is withdrawn the pressure may remain constant, or there may be a steady fall. In one case this fall seemed to be due to a drop in the blood pressure caused by puncture of the membranes. In a case of tabes dorsalis the pressure remained the same during the removal of 10 c.cm. of fluid. The great effect which removal of a small amount of fluid may have on the pressure was shown in the case of a patient with tuberculous meningitis. With the withdrawal of the first cubic centimetre the pressure fell from 400 to 320 mm., and it went on falling very rapidly as the next few cubic centimetres of fluid were removed. Readings taken with an instrument that could not show the pressure before the removal of fluid would in this case have given an error of 20–50 per cent. Dr. Kilgore has nothing to say of the clinical significance of pressure readings, but suggests that the types of pressure-volume curves occurring with spinal compression at various levels, or with coma of various kinds, may turn out to be useful in diagnosis.

[1] Tidsskrift for Den Norske Laegeforening, Nov. 1st.

A QUESTION OF NOMENCLATURE.

"SCIATICA is a rare and unusual disease," writes Dr. H. T. Patrick in a recent *Bulletin* of the Life Extension Institute of New York. On the other hand, Mr. Wilfred Harris says in his well-known book on Neuritis and Neuralgia, "Sciatica is a very common complaint." It is all a question of nomenclature. With the constant advance in our knowledge of the pathology of disease, the need of a standardised nomenclature becomes ever more pressing. Some years ago anatomists set an example by holding a conference to consider their own terminology, and although unanimity was not reached, there is at least an international terminology for any teacher to use if he cares to do so. Clinicians still wander at their own free will. Continental equivalents were left out of our "Nomenclature of Diseases" in its most recent edition, and the term "sciatica" appears only in the index of the Nomenclature with the remark, "*See* Diseases of Nerves." In the "International List" (of causes of death) the term appears under "Hysteria and Neuritis," subsection "Hysteria, Neuralgia." The two contradictory statements quoted above can only be reconciled by a recognition of the fact that the term sciatica is being used to designate two different conditions. Sciatica, the "common complaint," is pain in the region of distribution of the sciatic nerve, its components or branches. Sciatica, the "rare disease," is pain due to "an inflammation of the interstitial tissue of the sciatic nerve or its roots," as defined in "Modern Technique" (THE LANCET, 1926, i., 991). Even if the latter definition is accepted, it is doubtful if Dr. Patrick is correct in assuming that only ten cases out of every hundred of the "common complaint" are examples of the "rare disease," though Putti and other con-

tinental teachers incline to this view. There are several synonyms in use to describe pain arising from disease of the interstitial tissue of the sciatic nerve—e.g., neurofibrositis, interstitial neuritis, perineuritis, sciatic neuritis, essential, idiopathic, or true sciatica. Of these "sciatic neuritis" seems to be the most accurate, though "idiopathic sciatica" is being increasingly used. The fact that sciatic pain occurs in such diverse conditions makes a full examination necessary in every case, a point lately emphasised in our columns. It would surprise anyone who has not studied the matter closely to observe how often writers in medical journals are driven to begin their articles with a definition of what *they* think some particular word, phrase, or condition means, simply because there is no authoritative ruling to guide them. The need exists for a committee to define existing medical terms and to allocate new ones as occasions arise; such a committee might start by defining sciatica, eczema, cancer, and constipation.

THE ACTION OF SYNTHALIN.

ON Sept. 3rd we published a series of reports submitted to the Medical Research Council by various workers to whom synthalin had been issued for clinical trial. In doing so we pleaded for caution in view of the possible consequences of the introduction of the new remedy and drew attention to the somewhat disappointing results which had already been reported. What was said at the meeting of the Section of Therapeutics of the Royal Society of Medicine on Dec. 13th on the whole supported the belief we then expressed that the new substance has not substantiated the claims of its sponsors. Prof. H. H. Dale, relating the results of pharmacological experiments conducted in his laboratories, said that his co-workers have failed to produce any storage of glycogen in the livers of animals treated with synthalin, although they could easily demonstrate its reduction of sugar circulating in the blood. In an animal suffering from hypoglycæmia due to repeated administration of insulin, injection of adrenalin will always bring about immediate liberation of sugar from the glycogen stored in the tissues; but if the hypoglycæmia has been produced by synthalin this glycogenesis does not occur. In perfusion experiments on isolated limbs there was no deposition of glycogen in the muscles, although the blood-sugar disappeared under the action of synthalin, and Prof. Dale expressed the opinion that this fundamental difference in its action may well make synthalin a less valuable remedy than insulin in cases of diabetes. His impression was that synthalin caused a great fall in the blood-sugar only when the dose was large enough to inflict serious functional damage on the liver. Prof. Dale's experiments were admittedly made with toxic doses, because he wanted a recognisable effect; but Dr. P. J. Cammidge said that his own experiments with smaller quantities had given very similar results. Dr. George Graham, who spoke after Prof. Dale, gave interesting reports of 12 cases in which synthalin had been tried clinically with careful controls. In several of these its administration had enabled the physician to use a smaller dose of insulin, but complete replacement of the hypodermic preparation was only achieved in one case, and there were many failures and a number of toxic manifestations. Dr. R. D. Lawrence pointed out that synthalin could not be administered for long periods, and doubted whether the remedy had added anything important to the routine treatment of diabetes. Whether it is true that its employment is on the decline in Germany we are unable to say, but it seems clear that at present its use is laborious and its benefits often absent or doubtful. Prof. Dale's experiments go a long way towards explaining this disappointment, for they show that the mechanism by which synthalin reduces blood-sugar is very different from the true replacement-therapy by which insulin does its work.

Modern Technique in Treatmen

A Series of Special Articles, contributed by invitati on the Treatment of Medical and Surgical Conditio

CCLV.

PREVENTIVE TREATMENT OF DIGESTI TROUBLES IN YOUNG CHILDREN.

THE most satisfactory means of preventing digest troubles in later life is to ensure the development a robust and well-disciplined alimentary syst during the period of its most active evolution—t is to say, during the first and second years of life.

Natural feeding, if properly conducted, ensures normal development of the digestive tract during most important period of all—namely, during first nine months of life—and artificial feeding substituted for it, should aim at producing sim results by means of a milk diet modified as accurat as possible to the standard of breast milk. moment that this milk diet, whether breast milk artificial, is relinquished for the mixed food wh is indicated at or about the time that the first te are cut, new difficulties and dangers immediat present themselves. Heretofore the infant presumably had no form of carbohydrate food ot than sugar (lactose, maltose, or sucrose). Now he to learn how to convert starch into sugar for him —a most necessary accomplishment, since starch some form or other will in future be the main art of his diet. He has to learn how to masticate s forms of food and to tolerate roughage or ballast fi vegetable fibre, in order that he may be provided v a solid basis for his stools.

It must be remembered that during the milk the physiological basis of the child's motions is s —insoluble soap—consisting mainly of stearate calcium; hence the necessity for a generous allowa of fat in the food at this period. With the substitu of a mixed diet for the milk the same amount of is not required, but ample provision must be made ballast of another kind. The milk diet ensures t the child receives at least some representation every one of the elements required for growth maintenance. There is no guarantee whatsoever t on a mixed diet all these elements will be provid indeed, it may be taken for granted that a large num of them will fall short of the physiological requ ment. The chief offenders in this respect are min elements, vitamins, and cellulose or roughage.

About forty different elements or proxim principles are required to complete the physiolo dietary of the child. Hence it is obvious that ur the food programme is thought out very carefully consists mainly of milk, many omissions or defect balance may occur and mar its physiological rectit One of the chief necessities in changing from the to the mixed diet is to introduce every innova very gradually.

Accompanying is a series of tables suitable different ages between 6 and 18 months, which I h drawn up in order to assist those who would fin irksome to arrange one themselves.

These tables, with or without modifications, ei by myself or others, have already been publi elsewhere, but are not for the most part e accessible.

At all periods of life included in this survey need for accessory food factors (vitamins, mi elements and extractives) should be kept constant view, and though some provision is made for the the combination of foods suggested in the acc panying tables, it is wise to ensure the inclusio a full complement of them from independent sou

The younger the child the greater the need for t essential imponderabilia of diet. It is often tho unnecessary to supply infants under three mont age with orange juice or other antiscorbutic. T

DIET TABLES—6–18 MONTHS.

(6 to 7 Months.)

6 A.M.	10 A.M.	Dinner, 2 P.M.	6 P.M.	10 P.M.
Breast or M.M., 6 to 7 oz.	Breast or M.M., 6 to 7 oz. Crust, butter, a trace.	Breast or M.M., 6 to 7 oz. Broth, 2 oz., *or* red gravy, ½–1 oz., given alone or with feed.	Breast or M.M., 6 to 7 oz. Crust, butter, a trace.	Breast or M.M., 6 to 7 oz.

(8 Months.)

reast or M.M., 7 to 8 oz.*	Breast or M.M., 7 to 8 oz.* Crust or rusk, ½ oz.; butter, ½ oz.; yolk of egg, ¼ oz., in feed or lightly boiled.	Strained veg. broth, 4 oz., *or* red gravy, ½ oz.; crust or twice-baked bread, ½ oz.; butter, ½ oz.; milk, 4 oz., alone *or* given with broth.	Breast, 7 to 8 oz., and crust, ½ oz., or M.M., 7 to 8 oz. with groats or baked flour, ½ oz., *or* crumb, ½ oz.	Breast or M.M., 7 to 8 oz.*

(10 Months.)

6 A.M.	8 A.M.	12 noon.	4 P.M.	8 P.M.
range juice, ½ oz.; sugar, ½ oz., with water.	Milk, 5–6 oz.; sugar, ½ oz.; toast or crust, 1 oz.; butter, dripping, or bacon fat, ½ oz.	Gravy, 1 oz., *or* broth, 4 oz.; potatoes, ½ oz.; veg. marrow, cauliflower, or other veg., ½ oz. Alternative meal: Fish pudding, 2 oz.; bread, ½ oz.; milk, 5–6 oz. sugar, ½ oz.	Milk, 5–6 oz.; sugar, ½ oz.; bread or crust, 1 oz.; butter, ½ oz.; stewed apples, 1 oz., *or* jam, ½ oz.	Milk, 5–6 oz.; sugar, ½ oz.

1 Year Old.

Breakfast.	Dinner.	Tea.	Supper.
lk, 6–8 oz.; sugar, ½ oz. ead, toast, rusk } Singly or combined 1–1½ oz. tter, dripping, bacon fat, &c. } Singly or combined, ½ oz. m (without seeds, pips or skins). lly, treacle, honey: ½–½ oz.	Fish, 1 oz., stewed in milk (2 oz.), *or* egg, 1 oz., *or* tripe stewed in milk, ½ oz. (milk, 2 oz.); potato, 1–2 oz., mashed with ½ oz. fat. Veg.: cauliflower, veg. marrow, Jerusalem artichoke, turnip, or Brussels sprouts, 1 oz. Milk pudding, 2 oz., or custard, baked or boiled. Stewed prunes or baked apple, 1 oz.; bread, 1 oz. Water to drink.	Milk, 6–8 oz.; sugar, ½ oz. Bread, toast, rusk, plain } Singly or combined, 1–1½ oz. Madeira cake,† oatmeal biscuits. } Butter, ½ oz.; jelly or jam without seeds, pips, or skins, ½–½ oz.	Bone and veg. broth, 3–4 oz. *or* milk, 6 oz.

(18 Months.)

lk, 8 oz.; sugar, ½ oz.; cocoa, z. Bread, toast, or rusk, 1½ oz. tter, dripping, bacon fat, ½ oz. n, jelly, treacle, honey, ½ oz. itercress or lettuce in season.	Fish, steamed, 1½ oz. (and served with white sauce); Potatoes, steamed and mashed with butter (½ oz.), 1½ oz.; carrots, turnips, boiled spanish onions, or soft. veg., 1½ oz. Sponge pudding, 2 oz. or sponge cake. Stewed prunes, dates, apples, apricots, well stewed and skins removed, 1½ oz. Bread, 1 oz. Water to drink.	Milk, 8 oz.; sugar, ½ oz. Bread, toast, rusk, sponge, or Madeira cake, oatmeal biscuits. } 1½ oz. Butter or marg., ½ oz. Jelly, jam, or treacle, ½ oz.	None. A hot drink if necessary.

M.M. = milk mixture. * Some of the water may be omitted. † Home-made.

9 months the diet is the same, except that dinner must be rather larger, and a few teaspoonfuls of stewed vegetable or baked apple pulp added.

not be a greater mistake, and the same applies to other accessory food factors. It is comparatively y to supply the latter from ordinary domestic ources, without having recourse to special prepara- ns, but many of these are now offered in concen- ted and convenient form by well-known drug- ists.

Vegetable and bone broth prepared according to own formula from chopped bone well boiled down h vinegar for many hours in order to decalcify it, h an addition of green vegetables which are only led for a short time, and liver, kidney, and other ernal organs, together with marmite, provide in ly concentrated form a valuable ensemble of most the required accessory factors; it can be given to nts and children of all ages.

Many commercial preparations such as roboleine, mar, vitaminose, virol, brestol, jecomalt, and iated malt, are all good and reliable preparations mixed vitamins. Vitamins A, C, and D are well resented in small leafed green vegetables, such as nach and brussels sprouts. Marmite is a concen- ed preparation of water-soluble D, and so are other st preparations, of which there are several on the rket. Ostelin is a reliable and concentrated paration containing the antirachitic factor. Mineral elements in physiological balance can be obtained by using a preparation which is now prepared. for me by Parke Davis, known as "nutritive salts."

ERIC PRITCHARD, M.D. Oxf., F.R.C.P. Lond.,
Medical Director of Infants Hospital, Vincent-square.

PRINCE ARTHUR OF CONNAUGHT ON THE TEACHING HOSPITALS.—Speaking last week at a meeting of the court of governors of Middlesex Hospital, of which he is chairman, Prince Arthur of Connaught expressed his belief that the public at large have not yet grasped the fact that the great voluntary hospitals have unostentatiously assumed responsibility for medical education and the advancement of medical science, and therefore do not appreciate the corresponding enlargement of their duty towards those institutions.

SMALL-POX HOSPITAL AT GRAVESEND.—Sir W. H. Thomas, chairman of the Port of London Sanitary Committee of the Corporation, last week opened a new building attached to, and a short distance removed from, the Port Sanitary Hospital at Gravesend. The building, which will be set aside for cases of small-pox occurring among the passengers and crews of ships arriving in the Thames, consists of two wards of four beds each with the necessary adjuncts.

Public Health Services.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

THE following are some of the 1926 statistics of four English and two Scottish counties :—

Name of district and estimated mid-year population.	Birth-rate.	Death-rates per 1000 of the population.					Death-rates per 1000 births.		
		All causes.	Tuberculosis.	Cancer.	Respiratory diseases with influenza.	Heart disease.	Diarrhœa, &c., under 2 years.	Infant mortality.	Maternal mortality from childbirth.
Kent (1,120,600)	16·2	11·0	0·85	1·42	1·5	1·6	6·0	55	3·6
Staffordshire (726,500)	19·9	10·9	0·87	1·08	2·0	1·4	8·2	72	4·4
Cambridgeshire (128,470)	15·2	11·8	0·86	1·75	1·5	1·7	1·0	53	3·6
Rutlandshire (18,020)	16·5	12·8	0·61	1·55	1·8*	1·3	3·3	63	6·6
Dunbarton † (54,227)	18·9	11·4	0·94	1·62	1·7	1·3	6·8	62	3·9
Dumfries† (46,108)	21·6	12·7	1·06	1·28	1·4	1·9	8·0	72	6·0

* Bronchitis and pneumonia only. † The figures refer to the county landward.

Kent.

Dr. Alfred Greenwood reports that the death-rates from both pulmonary and other forms of tuberculosis were the lowest ever recorded in the county. For the dispensary system the county is divided into eight districts and each of the eight tuberculosis officers is available for consultation at the request of the medical attendant. The county health nurses carry out health visiting and school nursing as well as the visitation of cases of tuberculosis, and it is estimated that the time devoted to the last-named work is equivalent to that of 8½ whole-time tuberculosis nurses. Institutional accommodation has been increased and there were 480 beds in use at the end of the year. The 1390 patients who received residential treatment included 69 ex-Service men, who were admitted to training colonies. The average duration of treatment for patients suffering from pulmonary tuberculosis was 158 days for males and 156 days for females. For non-pulmonary tuberculosis the duration of in-patient treatment was 330 days for males and 260 days for females. There has been great pressure on the non-pulmonary tuberculosis beds for which there is always a considerable waiting-list. Under the orthopædic scheme, which came into operation early in 1927, 48 beds are reserved for children suffering from bone and joint tuberculosis at the Alexandra Hospital, Swanley. Arrangements are made with various hospitals throughout the county and in London for X ray examinations to assist diagnosis, and 77 such were made during the year. Twenty-three patients received artificial pneumothorax treatment during the year, and Dr. F. J. Pierce (the medical superintendent of Lenham Sanatorium) reports that this treatment has proved most satisfactory, that several cases attend as out-patients, and that in the coming year their numbers will be considerably increased. Surgical appliances of various kinds are provided by the council free of charge when necessary. The 92 open-air shelters were loaned out to 129 patients during the year. The county dispensing station supplied a large amount of prescriptions, dressings, &c., to the sanatoriums and dispensaries.

The maternal mortality from childbirth was just equal to the average for the last 19 years. Efforts continue to be made to provide an efficient midwifery service, either by grants to nursing associations or by placing subsidised midwives with a guarantee minimum income of £100 in districts where there is not a livelihood for a midwife. The practising mid wives, numbering 342 (317 trained) attended betwee them 10,090 births and summoned medical help o 1642 occasions. A post-certificate course for midwive was held at Maidstone from Oct. 4th to 8th. Te lectures were delivered by specialists of various kind The attendance was better than last year, and 19 midwives attended part or all of the course. D Greenwood reports, after personal inspection maternity homes which have applied for registratio that most of them reach a high standard of equipmen Out of 128 homes inspected 111 have been registere and 17 hospitals and homes have been exempted fro registration. Round-table conferences are beir arranged between the Central Midwives Board and th local supervising authorities grouped. Dr. Greenwoo is acting as secretary for the S.E. group of 17 author ties for the purpose of arranging group representative and bringing forward subjects for discussion. Th first conference was held on March 3rd, 1926. Th county council acts as maternity and child welfa authority for an area comprising 6 boroughs, 12 urba and 20 rural districts with a population of 404,99 and the many centres in this area are visited periodi ally by the assistant county medical officer, wh discusses with the medical officer and health visito of the centre matters of interest or difficulty. A regards the puerperal fever and ophthalmia neona torum regulations a considerable number of hospita admit these cases, and 56 nursing associations allo their nurses to attend ophthalmia cases. No arrang ments have yet been made for a second opinion fo puerperal pyrexia and there is no obstetric speciali practising in the administrative county. A tab shows that during the last five years the infa mortality-rate in the area of the county schem compares favourably with that in the rest of Ken In 1926 the figures were for the special area 47·5 an for the rest of Kent 58·0.

The new houses erected in the county numbere 7256 compared with 4466 for the previous yea The shortage is given as about 8000, and Dr. Greenwoo is not satisfied with the progress that is being made t overtake the shortage. He also thinks that i addition to the 235 houses reported as unfit for huma habitation, there were a large number just over th borderline, and that although many property owne fulfil their obligations, there are too many "who attitude is unhelpful from a public health standpoi and short-sighted from their own point of view."

Staffordshire.

Dr. W. D. Carruthers thinks that the vital statisti are much more favourable than might have bee expected as the result of the long industrial upheava The death-rate from all causes was the lowest ev recorded in the county and the infant mortality-ra has only once been equalled in previous years. Th county health visiting area serves a population 321,197, including 15 urban and 14 rural district At the end of 1926 there were 27 combined scho clinics and infant welfare centres and four infa welfare centres. In ten of the larger centres th necessary equipment has been provided for antenat work, and the midwives have been invited to coöperat by bringing expectant mothers to the centre. It expected that as the result of the post-certificat lectures the midwives will take full advantage of th facilities offered. In order to comply with th puerperal fever regulations arrangements have bee made for the admission of cases to hospital for hom nursing if such a course is deemed desirable by th medical attendant, and for the services of a consultan obstetrician in each of the three districts into whic the county health visiting area is divided, while th county laboratory is available for bacteriologic examinations for the whole of the county. Only small proportion of the cases of ophthalmia neonatoru receive hospital treatment. Thus out of 166 case notified 12 were treated as in-patients, five as ou

ients, and the remainder at home. There were ee cases of impaired vision and one of the infants d.

Under the Milk and Dairies Order, 1926, the erinary inspections of herds will only be made en tuberculous milk is complained of by outside horities, or when samples of milk, taken by the nty council inspector, prove to be tuberculous. At onference with the local authorities it was agreed t the county council should take samples of milk tematically throughout the county and relieve the trict councils of this responsibility. Producers of ty milk are to be referred to the County Farm titute for help in reaching a higher standard of nliness. The returns made by the district medical cers of health indicate an improvement in the sing position. Until recently the new houses lt have only been sufficient to deal with the natural rease of the population, but it is thought that 0 of the 3000 houses built during 1926 will be ilable for reducing the number of overcrowded or it houses. "The existing arrears are enormous," a very great improvement may now be expected hin the next few years.

Cambridgeshire.

Dr. Frank Robinson says that the successful experie of the maternity scheme administered by the dcliffe Infirmary, Oxford, has led to negotiations for milar scheme for Cambridgeshire in connexion with denbrooke's Hospital, an essential feature of which uld be the establishment of an antenatal clinic with necessary maternity beds. The administrative nty consists of the borough of Cambridge and six il districts. The borough has its own maternity child welfare scheme and certain duties delegated t under the Midwives Act. There are 56 midwives ctising in the whole county, 54 of whom are trained also act as district nurses. The county council s scholarships for the training of nurse-midwives grants in aid of district nursing associations who loy them. During the year one new association ted work. In the rural districts the nurses visit ut half the expectant mothers, but there are no natal clinics. In the borough the facilities for attendance of expectant mothers at the centres is e used, and it is thought that the antenatal work uld be carried out by an obstetric specialist.

here are now in the county two firms holding ices for the supply of "Certified" milk. The nty council is to take samples for the detection of rculous infection on behalf of four of the rural icts, but the other two prefer to do the sampling themselves. When the tuberculous sample is d the machinery of the Tuberculosis Order will used as being less cumbrous than that of the Act. In spite of considerable activity on the part he sanitary authorities in building houses, it is y possible to close an unfit house. There were notifications of encephalitis lethargica and seven hs, making a total of 50 notifications and eaths since the disease became notifiable in 1919. Andrew J. Laird, the medical officer of health of borough, is of opinion that there is a great improve- in milk production as the result of clean milk petitions.

the borough (population 58,820) there have been houses erected since 1920, 571 by the town cil and 511 by other means. Dr. Laird reports a supplementary housing society has been ed. It is the intention of this society to let their es to people who cannot pay the rents of municipal es and who are in urgent need, because of over- ding or insanitary conditions. The society has d funds by donations and loans at a low rate of est, and sufficient money has been obtained to le the first 22 houses to be begun.

Rutlandshire.

Dr. Christopher Rolleston says that only one-third e mothers in the county have the advantage of d nursing in their confinements. The county council make grants to three nursing associations who employ nurse-midwives. The number of cases attended by midwives was 49, the total births being 299. Medical help was summoned in seven cases and the midwives attended 11 other confinements as maternity nurses. Dr. Rolleston refers to the advantage of periodical medical examinations in securing improved health and longer life, and points out that insured persons can have such from their panel doctors and that other persons can use the tuberculosis, V.D., and maternity centres for a similar purpose. Owing to the small figures the two deaths from childbirth make a high death-rate for the year 1926, but Dr. Rolleston shows that during the last 17 years there have been 5761 births in the county and only 14 deaths from childbirth, which gives a rate of 2·4 per 1000 births. Arrangements have been made with the Stamford Infirmary for the admission of difficult labour and puerperal fever cases. Maternity outfits are being supplied to expectant mothers below cost price and numerous applications for them are received. Dr. Rolleston suggests that arrangements should be made for a consulting obstetrician to visit Oakham and Stamford to see cases where difficulty in labour is anticipated. He would also like to see provision made for the institutional treatment of pneumonia. In 1900 11 persons died from cancer in the county and 18 from pulmonary tuberculosis; in 1926 28 persons died from cancer and only 10 from pulmonary tuberculosis. The health committee has issued a warning notice with regard to cancer of the breast for the purpose of securing early diagnosis and operation. The rheumatic children sent to the Children's Home of Rest, Liverpool, have done well. Out of 722 babies it was found that a comforter was used for 192 and not used for 530.

Three patients had pneumothorax treatment during the year. One has now left the county, but is doing well; the second is also doing well in his sixth year of treatment; and the third, who came from Leicestershire with the whole of the right lung and the larynx involved, so that she could only whisper, and with tubercle bacilli in her sputum, has now greatly improved and her sputum is free from tubercle bacilli. In referring to the Spahlinger treatment, Dr. Rolleston mentions that of eight cases treated at St. George's Hospital in 1913 and 1914 seven are dead and one untraced, and that a patient whom he saw with marked disease and tubercle bacilli in the sputum, who was at first reported to be doing well under this treatment, has just died. There is very little V.D. in the county, but it is difficult to secure continuation of treatment up to a complete cure. The percentage of mental defectives in the county is high, but Dr. Rolleston thinks this is due to extra-good ascertainment owing to the fact that he has completed 17 years in the county in the multiple capacity of medical officer for the maternity, infant welfare, tuberculosis, venereal, and school services. The county council has now adopted the Housing (Rural Workers) Act of 1926 and approved a scheme for its operation.

An outbreak of poliomyelitis took place somewhat later than the Leicestershire epidemic. There were two cases in September, 12 in October, and 3 in November. Three of the cases occurred in one household and two in another. Arrangements have been made under the Milk Act for the inspection of the milch cows in the county by three veterinary inspectors at regular intervals; 10*s.* is to be paid for each visit to the dairy and 1*s.* for each animal inspected. The biological examinations of the milk, when necessary, will be made at Cambridge.

Dunbarton.

Dr. T. L. Thomson says a beginning has been made with the inspection of farms under the Milk Act. The county is administered by an eastern and a western district committee, and the two district committees and the burghs have combined to appoint Mr. James McDougall, M.R.C.V.S., as veterinary inspector for the milk enactments and the Contagious

Diseases of Animals Acts. This appointment puts the work on a much sounder footing. The western district has 136 registered dairies containing 2959 cows. Amongst these the inspector found four tuberculous cows and he took samples from four suspicious udders, the milk from two of which was found to contain tubercle bacilli. These tuberculous cows were slaughtered under the Order. In the eastern district there are 118 dairies and 2642 cows. Among these no tuberculous animals were found by clinical examination, but samples were taken from 15 suspicious udders. These samples were submitted to microscopic examination with negative results. Apparently the biological test was not performed, in which case the time spent by the veterinary inspector in the search for tuberculous cows may have been largely wasted. In the eastern district one herd of 30 Ayrshires was tested with tuberculin and a licence granted for the sale of Grade A (T.T.) milk. It was only possible to inspect the cows in the two districts once during the year, owing to the large amount of time spent in explaining the new legislative provisions. In May a county laboratory was fitted up and in June a notice was received from the Usher Institute that examinations for local authorities would be discontinued from Oct. 1st. By the end of the year the burghs, the education authority, and the hospitals in the county had all arranged to use the new county laboratory. Ultra-violet light treatment is provided by sending the patients to Glasgow hospitals and paying their railway fares when necessary, but it is hoped to establish this treatment in the county at the new clinics which are to be built at Alexandria and Duntocher. The by-laws for seasonal workers are receiving better attention from both the farmers and potato merchants. Almost continuous inspection by the sanitary staff was necessary during the summer at the various camping-grounds, the principal one being between Ardmore and Craigendoran. Water-supply appears to be the chief difficulty. There is considerable activity in the provision of houses to compensate for slum clearances. Over 200 "slum clearance" houses are under construction in the western district and 200 more are to be erected under the 1924 Housing Act. In the eastern district about 150 "slum clearance" houses are under construction and 200 additional houses are being built at Duntocher under the 1924 Act. In the western district there were several cases of scarlet fever and diphtheria notified at dairy farms. In no case did the milk become infected, but the sale had to be suspended temporarily in some cases. During the year, owing to an outbreak of typhus fever in Dumbarton burgh, the joint hospital had to be closed to diphtheria and enteric patients, and the tuberculosis patients were sent home in order to make room for typhus contacts. In the eastern district an unusual occurrence was an outbreak of 88 cases of dysentery. The bacteriological investigation was carried out by the Glasgow public health laboratory, and it appeared to be clear that the origin of the outbreak was a farmer who had suffered from dysentery in Mesopotamia during the war, remained a "carrier," and been the means of infecting the milk. The bacilli discovered were of the dysentery type and closely resembled the Sonne bacillus, but showed serological divergences. Only one of the notified cases died and in this instance there was some doubt as to the diagnosis.

Dumfries.

Dr. John Ritchie states that the greatest degree of overcrowding exists in the parishes of Kirkconnel and Sanquhar. Kirkconnel was also the parish most affected by the coal stoppage. The infant mortality of Kirkconnel for the year was 83·3 as compared with an average of 94·7 for the previous five years. An increased amount of medical comforts was supplied to nursing and expectant mothers on account of the stoppage and took the form chiefly of milk and eggs, with a view to providing a sufficient supply of vitamins. In February an intimation was received from Edinburgh that five consumers of milk from a Dumfriesshire dairy had developed typhoid fever. Investigations showed that a woman milker at th farm had suffered from typhoid in 1904, and had positive Widal and bacilli in her excreta. She wa isolated in hospital for observation. Inquiries di not elicit any history of other cases of typhoid cause by her during the last 22 years. Much is hoped fro the Housing (Rural Workers) Act, which became la in 1926, as it is impossible to close old houses owin to the shortage. A scheme for the supply of wate to a considerable part of the Dumfries district wa under consideration, but the cost was prohibitiv The Thornhill sewage disposal system appears to b the chief source of pollution of the Nith, and the Moffa system of the Annan. In the dairy by-laws it ha been found necessary to make special provision fo cow-keepers who do not sell milk, but sell butter i small quantities at certain seasons of the year. Unde the Tuberculosis Order 77 cows from registere dairies were slaughtered; 57 had "advanced disease, 15 "not advanced," and in five cases n tubercle was found. Of these 77 cows 15 were reporte by the county veterinary inspectors, 36 by veterinar practitioners, and 26 by owners.

The scavenging of the small villages, where th valuation is too small to permit of a special scavengin district being formed, causes difficulties. The refuse frequently tipped over a bank and is apt to cause nuisance by catching fire, and in other ways. It suggested that the refuse should be spread in laye and covered with soil after being laid down.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED DEC. 10TH, 1927.

Notifications.—The following cases of infectio disease were notified during the week:—Small-po 230 (last week 366); scarlet fever, 2099; diphtheri 1572; enteric fever, 56; pneumonia, 1424; puerper fever, 36; puerperal pyrexia, 95; cerebro-spin fever, 8; acute poliomyelitis, 9; acute poli encephalitis, 3; encephalitis lethargica, 35; dyse tery, 20; ophthalmia neonatorum, 95. There w no case of cholera, plague, or typhus fever notifi during the week.

The cases of dysentery were notified from Amersha R.D. 1, Bristol 9, Leominster R.D. 1, Belford R. (Northumberland) 1, Goring R.D. (Oxford) 1, Cheadle R. (Stafford) 2, Reigate R.D. 1, Denbigh 4; all presumab from mental hospitals.

Deaths.—In the aggregate of great towns, includi London, there was no death from small-pox, 3 (0) fro enteric fever, 76 (13) from measles, 10 (5) from scarl fever, 23 (5) from whooping-cough, 40 (6) fro diphtheria, 67 (14) from diarrhœa and enteritis und two years, and 77 (13) from influenza. The figures parentheses are those for London itself. The deat from enteric fever occurred one each in Willesde Reading, and Salford. The number of stillbirt registered during the week was 263 in the great town including 51 in London.

Apart from the metropolis, the fatal cases of measles we notified from West Ham 1, Brighton 2, Great Yarmouth Bristol 8, Stoke-on-Trent 1, Walsall 1, Derby 4, Chest field 1, St. Helens 2, Warrington 2, Manchester 27, Salford Sheffield 5, Darlington 1, West Hartlepool 1, Newcast on-Tyne 1, Rhondda 1. In the same week 34 fatal cas were notified from Glasgow and 6 from Dublin.

DONATIONS AND BEQUESTS.—Mr. William Thelw Thomas, F.R.C.S., of Allerton, Liverpool, left, among oth bequests, £5000 to University of Liverpool to endow Fellowship in surgical pathology; £5000 to the Roy College of Surgeons, Lincoln's Inn-fields, W.C.; £5000 the Royal Medical Benevolent Fund, for pensions f medical men and their widows; £1000 to the Liverpo Medical Institution for the annual purchase of books reference or journals; his house, 84, Rodney-street, in tru to be used as chambers for medical men so long as t executors shall think fit; and the portrait in oils of hims to Liverpool University.

Special Articles.

EDICAL REQUIREMENTS FOR FLYING S LAID DOWN BY THE INTERNATIONAL COMMISSION FOR AIR NAVIGATION.

PRIVATE PILOTS (OWNER-FLIERS).

. *Licence.*—Every candidate before obtaining a vate pilot's licence (flying machine) will present iself for an examination by qualified medical men cially designated for that purpose by the con- ting State issuing the licence.

. This medical examination shall be based upon following requirements of mental and physical ess :—

istory.—Good family and personal history, with par- lar reference to nervous stability, as to which information l be given in a statement made and signed by the lidate and satisfactory to the examining officer.

ge.—Candidates for private licences (flying machines) not apply for a licence before the age of 17.

eneral Surgical Examination.—The candidate must her suffer from any wound or injury, nor have undergone operation, nor possess any abnormality, congenital or uired, which might interfere with the safe handling of aft under ordinary conditions.

alpation of the abdomen and abdominal viscera, par- arly the pyloric, vesicular, duodenal, and appendicular ns, whenever it reveals any swelling or distinct pain, be completed by a radioscopic and radiographic ination.

ay surgical intervention in the biliary passages or the stive tube, except appendicitis, involving a total or ial excision or a diversion of one of these organs, any omical lesion in the walls of any part whatever of the stive tube, any stricture of its calibre, any calculus or gn body, any peritoneal lesion, established by clinical boratory examinations, will entail rejection. Exception be made for spasmodic strictures not accompanied by troubles and for ptoses compensated by a good minal musculature.

seases of the liver (including those of the biliary ages) and of the pancreas will in cases where it is deemed ssary be verified by laboratory examination, par- arly by radiography as well as by an examination of lood and of the urine, and will entail rejection only if afford indication of the existence of a calculus, tumour, sion involving a persistent impairment of function of organs.

neral Medical Examination.—The candidate must not from any disease or disability which renders him suddenly to become incompetent in the management rcraft. He must possess heart, lungs, and nervous m in a state to withstand the effects of altitude. He be free from kidney disease, and must not present clinical sign of syphilis, nor have any cardiac lesion.

e Examination.—The candidate must possess a degree sual acuity equal to 6/9 for both eyes with correction asses if necessary, the visual acuity being measured by s of a powerful illumination not shining directly into yes of the examinee. Ocular poise, the field of vision ch eye, and colour perception must be normal.

r Examination.—The middle ear must be healthy. andidate must possess an auditory acuity not less than corresponding with the perception of the whispered at 1 metre. The vestibular mechanism must be and not hypersensitive. It must be equal on both

se, Throat, and Mouth Examination.—The candidate possess free tubal air entry on both sides.

Each contracting State shall provisionally fix vn methods of examination, until the details and ninimal conditions of the tests shall have been d by a decision of the International Commission ir Navigation. . . .

The successful candidate will receive a medical icate of acceptance, which must be produced e the licence can be issued. . . .

Any aircraft pilot certificated before June 28th, will be considered as having fulfilled the require- s mentioned above for the granting of a certificate ysical fitness unless he should be found to have thological defect capable of causing a sudden ent.

OPERATING CREW OF AIRCRAFT ENGAGED IN PUBLIC TRANSPORT OR AERIAL WORK.

6. *Licence.*—Every candidate before obtaining a licence as a pilot, navigator, engineer, or member of the operating crew of aircraft engaged in public transport or aerial work will present himself for examination by medical men specially designated by the contracting State issuing the licence.

7. *Preliminary Examination.*—The candidate, before undergoing the examination referred to in the preceding paragraph, must have successfully undergone a preliminary medical examination at which he must have satisfied the minimal requirements as to physical fitness indicated below. This examination will be made, at the option of the State issuing the licence, either by the medical men referred to in the above paragraph, or by any other medical man.

The candidate must have the complete use of his four limbs, must not be completely deprived of the use of either eye, must be free from any active or latent, acute or chronic, medical or surgical disability or infection. He must be free from any injury or wound which would entail any degree of functional incapacity which might interfere with the safe handling of aircraft at any altitude even in the case of prolonged or difficult flight. He must be completely free from hernia, must not suffer from any detectable sensory lesion, and must be free from a history of morbid mental or nervous trouble.

8. Medical supervision, both for the selection and the maintenance of efficiency of the personnel specified in paragraph 6, shall be based upon the following requirements of mental and physical fitness :—

History.—The candidate will be questioned at the first examination concerning his family and personal history.

Examination of the Nervous System.—At the first examination the examination of the nervous system of the candidate shall comprise a full inquiry into family and personal history. The information obtained shall be given in a statement made and signed by the candidate and accompanied, if possible, by a certificate in regard especially to losses of consciousness, fits, and convulsions of all kinds, from the candidate's ordinary medical adviser or a responsible person who has known him for a long time. This statement and this certificate must be deemed satisfactory by the examining medical officer.

The candidate must not present any mental or trophic impairment, pathological tremor, or presumptive evidence of latent epilepsy. Motility, sensibility, tendinous, cutaneous and pupillary reflexes, coördination of movements, and cerebellar functions must be normal. An exception may be made for local peripheral trouble due to accidental section of a nerve branch.

Fractures of the cranium involving the internal table of the cranial box, even without apparent impairment, will entail temporary unfitness during a period of two years from the date of the fracture.

Any presumed nervous syphilis will entail rejection, unless the non-existence of such an impairment is proved by an examination of the blood and an examination of the cerebro-spinal fluid, made with the consent of the candidate.

Age.—Pilots and navigators of aircraft engaged in public transport may not enter upon their duties before 19 or after 45 years of age.

General Surgical Examination.—The candidate must neither suffer from any wound or injury, nor have undergone any operation, nor possess any abnormality, congenital or acquired, which might interfere with the safe handling of aircraft at any altitude even in the case of prolonged or difficult flight.

The rest of this examination is the same as for private pilots.

General Medical Examination.—The candidate must not suffer from any disease or disability which renders him liable suddenly to become incompetent in the management of aircraft. His muscular power must be adequate for the handling of the types of aircraft he will have to pilot or the apparatus he is to use.

He must not have any signs of aneurysm of the large arterial trunks, nor have any cardiac lesion, even if well compensated; the heart must be normal, with normal function; and only respiratory arrhythmia, increase of pulse-rate from excitement or exercise, and a general slow pulse not associated with auriculo-ventricular dissociation will be allowed.

The candidate must not suffer from any acute disability of the lungs, nor possess any cicatricial lesion of the lungs, and must be free from tuberculosis capable of being diagnosed by the usual clinical methods, from tracheo-bronchial

disease of the glands and from pulmonary emphysema, even if slight. However, with regard to the maintenance of efficiency of the personnel specified in paragraph 6, pulmonary emphysema will entail rejection only when the pulmonary capacity falls below 3½ litres at rest after a full exhalation and inhalation, and when the duration of the breath-holding falls at rest below 50 seconds, or only 40 seconds if the candidate is less than 1 metre 65 cm. in height or is of the female sex. In addition, each examination shall include a radioscopy record in doubtful clinical cases.

The candidate must not present any signs of organic disease of the kidneys; these latter must be insensitive to palpation and of normal size. Renal ptosis will entail rejection; this rule, however, will not apply as regards the maintenance of efficiency if no functional trouble is involved. The urine must not contain any pathological element. Affections of the urinary passages and of the genital organs, even blennorrhœa, may entail temporary or definite unfitness, an exception being allowable as regards the maintenance of efficiency in the case of tuberculous orchi-epididymitis in its mild and localised form.

Women Applicants.—Candidates of the female sex must present a normal uterus and appendages. Cases in which surgical intervention has taken place will be considered individually. Any presumed pregnancy will entail rejection. Following confinement or miscarriage, the holder of a licence will be allowed to resume her air duties only after having undergone a new medical examination.

The candidate must not present any clinical signs of syphilis.

Eye Examination.—The candidate must possess a degree of visual acuity compatible with the efficient performance of his duties. Pilots and navigators must possess visual acuity equal to 100 per cent. for each eye taken separately and without correction by glasses, the visual acuity being measured by means of a powerful illumination not shining directly into the eyes of the examinee. Binocular vision, ocular poise, the field of vision of each eye, and colour perception must be normal.

Ear Examination.—The middle ear must be healthy. The candidate must possess an auditory acuity not less than that corresponding with the normal perception of the tuning-forks C (1) 64 vibrations per second, C (3) 256 vibrations per second, and C (7) 4096 vibrations per second, the forks being held perpendicularly to the ground 1 cm. from the auditory tube. The vestibular mechanism must be intact and not hypersensitive; it must be equal on both sides.

Nose, Throat, and Mouth Examination.—The candidate must possess free nasal and tubal air entry on both sides and must not suffer from serious, acute, or chronic affections of the buccal cavity or upper respiratory tract.

9. *Provisional Methods.*—Each contracting State shall provisionally fix its own methods of examination, until the details and the minimal conditions of the tests shall have been settled by a decision of the International Commission for Air Navigation. . . .

10. *Certificate of Acceptance.*—The successful candidate will receive a medical certificate of acceptance, which must be produced before the licence can be issued or renewed.

11. *Re-examination.*—In order to ensure the maintenance of efficiency, every member of the personnel specified in paragraph 6, who holds a licence, shall be re-examined periodically at least every six months, if of the male sex, and every three months, if of the female sex, by medical men specially designated by the contracting State issuing the licence, and the findings shall be attached to his original record. In case of illness or accident also he shall be re-examined and pronounced fit before resuming air duties. The date and result of such re-examination shall be recorded on the licence of the person examined.

12. *Carrying On.*—Any member of the operating crew referred to in paragraph 6, who is able to produce proof that since his last medical examination he has not ceased to perform his duties in a satisfactory manner, and that he has accomplished a total of at least 200 hours of flight within the two years last preceding, may be retained in service so long as his physical capacities as ascertained at his last medical examination are sufficiently maintained, unless there be detected in him a pathological defect capable of causing a sudden disability.

A candidate already holding a licence issued after a medical examination but not valid for public transport or aerial work, may be accepted, subject to the conditions specified in the preceding sub-paragraph, as a member of the operating crew referred to in paragraph 6, provided that he c produce proof that, since his last medical examinati he has not ceased to carry out in a satisfact manner the function in respect of which he appl for one of the licences enumerated in paragraph 6, a that he has accomplished a total of at least 200 ho of flight within the two years last preceding.

LIGHT AND HEAT IN MEDICINE.
AN INTERNATIONAL EXHIBITION.

Lieut.-Colonel F. E. Fremantle, M.P., opened t First International Exhibition of Light and Heat Medicine, Surgery, and Hygiene which was held the Central Hall, Westminster, from Dec. 13th to 16t

Dr. King Brown, medical officer of health Battersea, who presided, emphasised the need caution in sunlight treatment, and the necessity medical supervision in all cases, because so little known of the actual mode of action of the rays.

The exhibition itself was attractively laid out, a there was a wide range of apparatus on view. Probal the commonest type of U.V. (ultra-violet) produ is the quartz mercury-vapour burner, and seve improvements in this have recently been ma The Hewittic Electric Co. showed a burner made vitreosil which cuts off wave-lengths below 25(2800 A.U., and in combination with two me filament lamps gives a spectrum closely resembli that of the sun at high altitudes. A similar res may be obtained by placing a vitreosil screen in fr of a quartz burner, and examples of this meth were also exhibited. The same company also show an A.C. burner which can be lit, without tilting, passing a high-tension discharge through the bur by way of a special electrode. No doubt this elimina the risk of damage by too vigorous tilting, and convenient where a lamp is relatively inaccessi Another improvement is a burner which perm the reversal of polarity without sustaining dama This is shown by British Hanovia Quartz Lamp C but is only obtainable in a small size.

The design of stands has reached a high level. T majority shown are very stable, and allow ev necessary movement. Some, however, are not satisfactory, though none was noticed which co be considered dangerous. Several overhead ty were shown, and these may perhaps be viewed w a certain amount of doubt as fracture of burne with consequent spilling of hot mercury, is impossible though it rarely happens. We would li to see more polarity indicators on lamps, as t majority of burners in use would be damaged by reversal of polarity even for a very short time.

A.C. burners were numerous; a new type, the op limb burner, of Gallois et Cie, and by Kelvin Bottom and Baird is an improvement, as it minimises t shielding of limbs by each other. Open arc lam were also well represented, many forms being av able, and there was also a large variety of carbo giving different types of spectrum. Most of t lamps exposed for sale as suitable for home treatme are of the carbon arc type, some using impregnat or coved carbons, and others apparently plain carbo Lamps burning metallic electrodes are to be seen, a of late have shown considerable improvemen especially in the striking gear and carbon holde Care is needed in manipulating these lamps, bo from the electrical and therapeutic points of vie When replacing electrodes it is easy to get unpleasant shock unless the main switch is op whilst from the therapeutic side it is easy to get severe reaction from comparatively short exposur The metals employed are usually tungsten, ir copper, and aluminium, and the radiation contains considerable proportion of the short wave-leng which are so active in causing erythema. In co nexion with this kind of lamp it is interesting to n that Bellingham and Stanley have introduced a n alloy, the "B.S. Alloy"; this is intended to repla

ngsten, as it costs only one-quarter as much as at metal, and burns even more slowly. The spectrum mewhat resembles that of tungsten, except that it specially rich in radiations in the region 2900–00 A.U.

Portable forms of U.V. lamps and those designed r home use were shown on many stands. They are arly all designed to be run from ordinary house rcuits where the fuses are seldom intended for more an 5 ampères. This is the average figure for the rbon types on starting, and it drops a little once the c comes into action. Various devices are used to viate any chance of overdose. The Ulviarc by the I. Syndicate uses a time clock which can be set to 15 minutes; unless it is set the lamp cannot be itched on and after the lapse of the time indicated e lamp is switched off and cannot be relighted till e clock is set again. This clock and switch may be d separately in a neat case for connecting with any mp not using more than 5 ampères. The action is e same as when it is incorporated with this firm's rtable lamp. The Quain lamp prevents overdosage by ranging that the carbons only burn for ten minutes, ter which they have to be readjusted by hand. These e very important features in any lamp for home eatment, and further points to be looked for are the ssibility of getting shocks by touching bare metal carbons connected to the mains. The majority of e portable lamps now appear to have adequate ulation and control switches. The tendency is to range controls permitting use of the lamp on all rmal main voltages. The carbon type of arc seems be the most suitable for use in patients' homes cause if appropriate carbons and powers are ployed it is relatively weak in the shorter wave-gths, which appear to be the most dangerous when d in unskilled hands. The enclosed quartz mercury-pour lamp can now be had in portable form, but view of the above considerations it does not seem be suitable for use by patients themselves—if this ever advisable. Two such outfits were noticed. e first, shown by the British Hanovia Quartz Lamp ., and called the "Homesun," consists of a small artz burner in a metal hood mounted upon its istance unit; the burner is for direct current only, l can be connected to the main in either direction hout damaging the burner. This lamp consumes) watts from the main. Kelvin Bottomley and ird showed a neat outfit contained in a box about size of a large suitcase consisting of a quartz rcury burner suitable for either direct or alternating rent, with resistances for all voltages and parts for and enabling a patient to be treated in any position. is outfit is intended for medical practitioners who h to treat patients in their own homes or in nursing-nes. It is designed to run off ordinary circuits.

Apart from their therapeutic value ultra-violet rays e many applications in the sciences. Thus the stfield College (University of London) showed an eresting series of experiments with U.V. rays on nts. It appears that the effect of unscreened U.V. s is a definite retardation of growth, but when ens of various glasses are used hardly any difference ween controls and experimentals is noted. This gests that the plant, whose metabolism depends irely on the sun, is unable to make use of—and ven damaged by—wave-lengths shorter than those sun itself emits. U.V. rays are also being used y widely in optics. Kelvin Bottomley and Baird wed U.V. lamp for ophthalmoscopic work and roscope illumination, and a type with a filter ing off all visible light which would be suitable for in clinic, especially for ringwork cases. R. and J. k showed microscopes, spectroscopes, and spectro-ers, and Carl Zeiss exhibited a variety of micro-es and illuminants for ordinary polarised and chromatic light. They also had an electric thalmoscope on view. U.V. water-sterilisers were wn by Kelvin Bottomley and Baird and the ittic Co. The latter company's steriliser consumes mpères and delivers sterile water at a rate of gallons per hour. The taste of the water is unaffected, and we are informed the method is used by a large aerated water firm. The sterilisers can be obtained in very large sizes suitable for even the largest quantities of water.

High-frequency and diathermy machines were on exhibition, but there appear to be few changes, except for the introduction by Kelvin Bottomley and Baird, in conjunction with Gallois et Cie, of evacuated quartz electrodes for high-frequency machines. These electrodes contain a little mercury and therefore, it is claimed, emit ultra-violet radiation. A spectrograph is given showing a typical mercury spectrum said to have been obtained from one of these electrodes. Quantitative details are not given, but the emission must be very small unless the electrode is a more efficient generator than the mercury-vapour burner.

The Chloride Electrical Storage Co. exhibited a very wide range of storage batteries. They are a decided improvement upon the dry cell for galvanic treatment, and for radium balances and electroscopes they are invaluable. Portable unspillable types are available for surgical lamps, cauteries, &c. For scientific institutions they are useful for providing a steady source of energy.

MEDICINE AND THE LAW.

Insanity as a Reason for Divorce.

THE legal situation regarding divorce for insanity varies greatly in different countries, as was brought out recently in a report made by Dr. Boven at a congress at Blois.[1] In France insanity is no longer considered a reason for divorce. A law passed in 1792 admitted insanity as a cause for divorce, but this was annulled by the Code Napoléon and divorce cannot now be obtained for this cause. The law in the United States varies according to State legislation. In some States insanity is considered a sufficient cause for divorce after six years (Idaho) or after ten years (Washington) of confinement. In other States the marriage may be annulled on grounds of epileptic or alcoholic mental disorders. In Sweden divorce may be pronounced if one of the parties is suffering from a mental disease which has lasted for three years of married life and if there is no hope of permanent cure. Since 1910 Germany has allowed divorce for insanity if it has lasted for three years, is sufficiently serious to destroy mental relations between the couple, and is considered incurable. A Swiss law passed in 1912 allows divorce if cohabitation is no longer possible, if the disease has lasted three years, and has been pronounced incurable by experts. In practice, divorces for insanity are fairly rare; out of 21,025 divorces granted in 11 years, only 435 (2 per cent.) were for mental causes. Dr. Boven weighed up the pros and cons of divorce for insanity. Among the former he placed the interests of the healthy husband or wife, and the fact that, in those countries where divorce is not allowed, efforts are often made to frustrate the law by bringing forward other motives for divorce. Against divorce, he argued that mental diseases are not essentially different from others, that it is almost impossible to say when a case is incurable, as cures are often effected after long years of confinement, and that doctors might become liable for damages for having broken up the home. On the whole, however, he was favourable to divorce on the grounds of insanity, but with certain restrictions.

Burning of Body to Avoid Inquest.

At the Lewes Assizes on Dec. 10th a woman pleaded "Guilty" to the charge of destroying the dead body of a five-months' old nurse-child at Brighton with intent to prevent an inquest being held. The prosecution alleged that she had burnt the body and scattered the ashes along the roadside. She had not registered the child. A superintendent of police stated that inquests had been held at Portsmouth

[1] See Paris Médicale, 1927, xvii., 287.

in 1913 on two nurse-children who were in the care of the accused and that in one of these two cases the coroner had spoken strongly of her conduct. Mr. Justice Horridge, describing her as a very wicked woman, passed sentence of nine months' hard labour.

It may be of interest to recall that the charge in the Lewes case was identical with that in R. *v.* Price which occasioned the elaborate exposition of our burial law by Mr. Justice Stephen at the Cardiff Assizes in 1883. At that date there was a general idea that to dispose of a body by burning—a practice opposed to the common sentiment of the country—was illegal. Price had put a dead child's body in a 10-gallon cask of petroleum and had set the cask on fire in a field. A crowd collected, earth was thrown on the body, the flames were extinguished, and Price was charged, first, with having prevented the holding of an inquest, and, secondly, with having attempted to burn the body. There was evidence that the coroner had told him that, unless a medical certificate was forthcoming, an inquest would be held. Price was acquitted on both charges, but Stephen's address to the grand jury remains an important authority on the coroner's right to hold an inquest, the limitations on his power to interfere with funeral arrangements, the offence of obstructing an inquest, and, lastly, the lawfulness of cremation. Stephen announced that he could find no authority for the proposition that it was a misdemeanour to burn a body; in the absence of such authority he declined to declare it a crime. He held cremation to be lawful provided that it was so conducted as not to amount to a public nuisance at common law, and provided also, of course, that the body was not burnt in an attempt to defeat the course of justice. "It may be that it would be well," he said, "for Parliament to regulate or to forbid the burning of bodies, but the great leading rule of criminal law is that nothing is a crime unless it is plainly forbidden by law." He reaffirmed his opinion in R. *v.* Stephenson in the Court of Crown Cases Reserved in the following year. The result was a movement to establish crematoria, the law having been ascertained to be no longer hostile, though Parliament did not deal with the subject until the Cremation Act of 1902.

"*Rum and Butter Toffee.*"

The Sale of Food and Drugs Acts continue to set nice problems to magistrates. The Bishops Auckland bench had to deal with an inspector's information under these Acts arising out of the purchase of something described as "Riley's Rum and Butter Toffee." A confectioner was charged with selling to the prejudice of the purchaser an article not of the nature, substance, and quality demanded. The manufacturers, who had supplied it under a warranty, accepted responsibility and were proceeded against for giving a false warranty. Analysis showed the toffee to contain both rum and butter; it had the flavour of both, but it also contained a large percentage of coconut fat which had been added to prevent the toffee from being too sticky. The case stated by the magistrates, who convicted the manufacturers and imposed a fine of 40*s*., set forth that toffee made with no fat but butter would be greasy both to touch and taste, that coconut fat was nutritious and harmless, and that toffee made partly of coconut fat had for years been sold as "rum and butter toffee." It was also stated that the flavour of rum and butter could be produced synthetically and that, if such flavouring were used, the substance which resulted would be properly called "rum and butter-flavoured toffee," not "rum and butter toffee." The King's Bench Division, by a majority of two judges to one, upheld the magistrates' conviction. Branson and Avory, J. J., said toffee was something which could be made with various fats, and the description "butter toffee" must mean toffee in which the only fat used was butter. Talbot, J., dissenting, said he thought "rum and butter toffee" meant toffee with a substantial amount of rum and butter in it; in his view the manufacturers should have been acquitted. There seems a good deal to be said for the latter opinion.

Correspondence.

"Audi alteram partem."

THE PRESENT POSITION OF THE VOLUNTARY HOSPITAL.

To the Editor of THE LANCET.

SIR,—Having just completed a ten months' tou in Australasia, Canada, the United States, and Grea Britain investigating problems of medical education research, and administration, in which the presen and future of the voluntary hospital have naturall formed an integral part, I have read Dr. Graham Little's address with considerable interest. Th more so, because my recent experiences amongst som of the finest of the self-supporting hospitals have le me seriously to doubt the alleged superiority of purel traditional methods, and Dr. Little's address ha done much to resolve those doubts. His thesi appears to be that the voluntary system must b maintained intact by all means in our power, becaus "it is to be borne in mind that the alternative to th voluntary system is exactly this bureaucratic contro which would necessarily be many more times expen sive." I venture to believe that Dr. Little's addres itself furnishes some destructive evidence against hi thesis, whilst his reason appears to be demonstrabl wrong.

Between the years 1913 and 1925 Dr. Little state that the cost per bed has increased by 100 per cent., an of this present-day cost of £200 per bed, some £9 has to be found by charitable appeal. This appea has to be made to the most heavily taxed people i the world, already straining under burdens of contri butions to upwardly rising poor rates, unemploymen doles, insurance schemes, and the like, and yet thi steadily increasing medical and national pauperisatio of the people is to be maintained intact by every mean in our power.

Dr. Little states that the middle class remain outside this system altogether, but that it is hig time that some provision was made for their prope medical treatment. It is difficult to understand ho the voluntary system of charitable doles to voluntar hospitals, largely and increasingly unable to meet th present requirements of either patient or advancin medical science, is to cope with this new burden. Bu is it not a fact that post-war financial stringency i forcing this very middle class into voluntary hospital intended originally, at all events, for the indigent sick

Dr. Little's article would appear to prove that thi is so, for he quotes with apparent approval that ther are now 1600 more hospital beds in London than ther were before the war, and this fact is adduced a evidence of progress and very vigorous life. To me i appears as the exact contrary. It looks as thoug there were a rising tide of medical pauperisation, of constant seeking of something for nothing, of national decay of morale, and of an ever-increasin tendency to put one's own burdens on to someon else. Patients who now seek hospital aid are clearl seeking the charity of others, and are doing so appa rently in constantly increasing numbers. The positio is fraught with possibilities of disaster, and the mai tenance of the voluntary system, with its fals economics, its inability to meet the constantly risin costs of medical science, and the obvious impossibilit of such a system coping with the demands of advancin knowledge in the progress of medicine must inevitabl bring the day of disaster appreciably nearer.

Dr. Little's paragraph on "paying beds" is also I think, condemnatory of the system he seeks to defen for it simply perpetuates the vicious circle. Willin to pay board and lodging, but unable to pay fo medical advice, such patients are to swell the alread swollen and inadequate hospital accommodation an are to be a further charge on medical, if not publi charity. To relieve the financial impecuniosity of th voluntary hospital at the further expense of th

medical profession is a curious reason for maintaining such a system intact. At the least, the Chancellor of the Exchequer should be invited by Dr. Little to remit all medical income-tax.

If the present voluntary hospital system is in quite the parlous condition set forth by Dr. Little I am unable to visualise its coping successfully with future progress in medical science, nor do I see the voluntary hospital adapting itself to such progress. It is a financial impossibility. Nor can it be supported by the manifest fables which someone has been telling Dr. Little of American hospital medical service. I visited many of the leading Canadian, Eastern, and Middle-West American hospitals in the early part of this year, and nowhere did I see the truly humorous state of affairs described by him. On the contrary I saw large, efficient, well-endowed, and *self-supporting* medical centres, combining hospital and medical school, and having seen such self-supporting hospitals I am quite unable to accept Dr. Little's contention that the voluntary system is the *only* alternative to this, and my, detestable bureaucratic control. It is because I so cordially agree that "State-aided institutions are the product of a weak-kneed generation" that I would earnestly beg him, and those who think with him, to investigate, as has been my own good fortune, other systems, before nailing the flag to the mast of a decadent and dangerous voluntary system, under the mistaken belief that bureaucracy—the present-day menace of democracy—is the only alternative.

In conclusion I should like to assure Dr. Little that these remarks are not made in that, to me, most detestable of all forms of criticism, the purely destructive. On the contrary, experience has led me to believe that upon the wise solution of an acute and difficult problem depends, not only the welfare of those magnificent institutions which he has so much at heart, but also that of the nation itself, and if this is so, then no stone should be left unturned to secure that future success to which the past and present splendid effort of British medicine so justly entitles it.

I am, Sir, yours faithfully,

RICHARD J. A. BERRY.

Dean of the Faculty of Medicine, University of Melbourne.

Dec. 17th, 1927.

To the Editor of THE LANCET.

SIR,—Dr. Graham Little's address touches upon a wide range of important subjects. In regard to medical education, perhaps the most significant change that has ever taken place is the subsidy granted by the Treasury through the Board of Education. For this subsidy has averted a bankruptcy in a system whose success depended, up to 1858, the date of the Medical Act, solely upon the fees of the pupils, and indirectly upon fees paid for examinations. Since, the old universities, owing to their endowments and the new, mainly from Governmental support, have generously promoted medical education and relieved the teachers of a burden that was rapidly becoming intolerable and that would in all probability have produced disaster. As a business proposition education is impossible; therefore it must be supported from other and trustworthy sources.

If the present hospital system is to reach a position in which it will adequately meet the needs of the people there should shortly be made a demand by the medical profession for further and free education and training of qualified and registered doctors to become expert physicians, surgeons, and specialists of all kinds; and for such a service an appeal should be made to the Treasury so that a new and additional system of medical education and training, worthy of the standing of British medicine, shall be established above and above the present system for the education and training of the ordinary doctor. Our present medical schools have as much to do as they possibly can; and, if report be true, many of them are suffering, on the one hand, from a plethora of students and, on the other hand, from a paucity of facilities for the technical training of the student in the work that awaits him, and of which he is expected to know and to be practised in when given a diploma or degree for placing him on the Medical Register.

It would appear that Dr. Little has hardly appreciated the fact that the voluntary hospital system is rapidly becoming transformed into the provident one, and that the success he records is mainly due to that fact. Many of the so-called voluntary hospitals are entirely supported on the provident system—weekly contributions from the workmen. Indeed even the hospitals with medical schools attached are doing their best to get themselves on that thesis so as to obtain a security in income. Were this transformation not taking place on a larger and increasing scale the plight of the hospitals would indeed be a serious one. I believe it would be better if all were now to open their eyes so as to see the new movement and to be ready to guide it so that the medical services for the people shall continue on a sound footing and be timely rearranged to meet the conditions attendant upon the provident system which is rapidly displacing the old, voluntary or charity, with their serious limitations in many directions. I am, Sir, yours faithfully,

Cambridge, Dec. 19th, 1927. JOSEPH GRIFFITHS.

THE PREVENTION OF DIPHTHERIA.

To the Editor of THE LANCET.

SIR,—From your annotation on this subject in THE LANCET of Dec. 10th (p. 1247) I infer that the London County Council are not convinced that the claims made for toxin-antitoxin immunisation in diphtheria are fully substantiated. It has been said [1] that no case clinically resembling diphtheria occurring in a Schick-negative reactor should be accepted as diphtheria until the Klebs-Löffler bacillus has been isolated and proved to be virulent by a guinea-pig test, a condition with which I am in full agreement, providing the same routine is followed in all cases in non-immunised subjects before the diagnosis of diphtheria is accepted. If this procedure were followed I have no doubt a very considerable percentage of cases regarded as diphtheria on the result of a Schick test would have to be rejected as "diagnosis not sustained."

It would be interesting to know exactly how much of the apparent increase in diphtheria during recent years can be attributed to the practice of medical men taking a swab from the throat—often a perfectly clean throat—and on organisms resembling the Klebs-Löffler bacillus being found, notifying the case as one of diphtheria. During 1925 the number of admissions to the Birmingham Fever Hospital for diphtheria was 1999, but of these 290, or 14·5 per cent., were found to be errors in diagnosis.

"Of 772 cases in which the medical practitioner had obtained a positive bacteriological report, 391, or 50·5 per cent., on admission showed no clinical evidence of diphtheria." [2]

If we examine the figures for the London area we find that during 1925 of the 9247 total admissions to M.A.B. hospitals for clinical diphtheria, the original diagnosis was held to be wrong in no fewer than 2366 cases, or 26·0 per cent. In addition 1004 cases were admitted as bacteriological diphtheria.[2]

Sir George Newman has stated:—

"The number of cases admitted (to the Metropolitan Asylums Board Hospitals) with mistaken diagnosis is higher than it was 15 years ago. Between 1911 and 1914 the percentage of cases of diphtheria wrongly diagnosed was 12·7 in 1911, 12·9 in 1912, 15·6 in 1913, and 11·4 in 1914, while for recent years the proportion has more than doubled." [3]

Little wonder that Drs. Harries, Macfarlane, and Gilhespy say [4]:—

"Every year many hundreds of people—adults and children—who are so unfortunate as to harbour harmless

[1] Medical Research Council, Special Report Series No. 115, p. 17. [2] Ibid., p. 22.

[3] On the State of the Public Health. Annual report of the the Chief M.O. of the Ministry of Health, 1926, p. 54.

[4] THE LANCET, Sept. 24th, p. 646.

diphtheroids, are hurried into infectious diseases hospitals upon the strength of a morphological diagnosis of a culture from the swab, to the needless anxiety of relations and at considerable cost to the community."

In fact, it is common knowledge that a large proportion of cases admitted to isolation hospitals as diphtheria show no clinical signs of that disease.

The mere fact of there being a lull in the number of notifications of diphtheria following immunisation does not necessarily prove anything. During the summer I received a visit from a Swedish medical officer of health, when amongst other matters we discussed diphtheria. He told me it had almost disappeared from his town of late years, and on my asking if it was due to toxin-antitoxin immunisation my friend replied: "Certainly not. Whatever be the cause it is not immunisation, for I have not practised it and do not intend to do so, as I do not believe in it." Up to the time of writing we have had this year a very considerable fall in the number of notifications of diphtheria in Northampton, and for some three months it has apparently been almost absent from the town, there not having been a single case in a child of or under school age. Again this happy state has not been brought about by toxin-antitoxin immunisation, for it has never been attempted here. The marked fall in the numbers for 1927 is no more due to immunisation than the rise in 1926 was due to the want of it. How easy it would have been for the "Schickites" to have claimed it as a brilliant success had we practised immunisation even to a limited extent.

This is not written with the desire to prove that immunisation is useless, but merely as a reminder how careful one should be in drawing conclusions where the amount of available evidence is very limited. From what one has heard first hand from those who have worked in hospitals where Schick's method was practised, I feel for the present we must return for Schick the same verdict you brought in for B.C.G.—viz., not proven.[5]

I am, Sir, yours faithfully,

STEPHEN ROWLAND,
Dec. 14th, 1927. Medical Officer of Health, Northampton.

To the Editor of THE LANCET.

SIR,—Under this heading you state in your issue of Dec. 10th (p. 1247): "It is not surprising, therefore, that the London County Council should have decided to re-examine the need for taking fresh measures to combat diphtheria." May I beg to point out that it was only on my request that any reconsideration of their policy in this matter was undertaken, and their decision to do nothing in favour of active immunisation of school-children was a confirmation of their previous policy in this matter. You will find in referring to the report that a suggestion was made (by myself) for an experiment to be tried in two or more of the Council schools, in which diphtheria is always rife. By the voluntary immunisation of as many children as possible during the next 12 months one would then be able to compare the results with schools in which immunisation had not been tried. As is well known, the metropolitan borough councils are very little in touch with children of the age-group 2 to 5 years, so that only a fraction of the future school-children can possibly be immunised by the borough medical staffs. It is mere window-dressing to suggest, as the report does, "that those parents who desire that their children should be protected by immunisation should be given every opportunity to satisfy their wishes." Obviously parents have had very little education on this subject, and the facilities afforded by the borough councils do not apply to more than a small proportion of those children who will eventually attend school; whereas a control experiment such as I suggested would have afforded some definite evidence of the protective value of immunisation against diphtheria.

I am, Sir, yours faithfully,

Chiswick, W., Dec. 14th, 1927. STELLA CHURCHILL.

[5] THE LANCET, 1927, i., 936, and August 20th, p. 403.

SPINNERS' CANCER.

To the Editor of THE LANCET.

SIR,—If we accept Dr. Robertson's views on th origin of scrotal cancer in mule-spinners it means tha a non-specific irritation such as a blow or frictio ("mere traumata" as Cheatle put it in a recent issue does and can, per se, cause cancer. The modern tren of opinion is in the opposite direction. The kerat genic agents, such as certain petroleums, coal product arsenic, actinic, X, and radium rays have been foun to be, statistically and clinically, closely associate with the appearance of malignant growths.

Every substance which irritates the skin has son special property, to which it owes its injurious activit This physico-chemical quality may be hygroscopi hydrolytic, protein-precipitant, oxidising, reducin keratogenic, dependent on solubility or volatility, ar so on. Without one or more of these characteristi both outside and inside the body, the agent is iner It cannot produce a dermatitis, much less a cance The purely physical injuries by themselves have n been shown conclusively to be keratogenic, neoplastic, as I have suggested elsewhere.[1] Eve though we accept the dictum of Murray,[2] "that it clear that cancer is not the direct response of th tissues to some special substance" the weight clinical and experimental evidence is strongly favour of some petroleum oils being important facto

We may accept Dr. Robertson's view that th constant friction of the overalls against the left aspe of the spinner's scrotum will denude the protectiv corneous layer from that part. The tissues will the be in a ready state to be acted upon by the perpetu rubbing in of any keratogenic material. The amou may be small—or even very small, as Dr. Roberts contends—but no mule-spinner in my experien admits that the scrotum is quite free from lubricati oil.

I am, Sir, yours faithfully,

Wigan, Dec. 17th, 1927. R. PROSSER WHITE.

TOXÆMIAS OF PREGNANCY.

To the Editor of THE LANCET.

SIR,—Referring to our recent report to the Medic Research Council on the investigation of cases toxæmia of pregnancy, Dr. Chalmers Watson asks question and makes a suggestion in the letter whi you published in your last issue. May we be permitt to reply to his observations? Dr. Watson remar that "in any series of 200 cases of toxæmia pregnancy the examination of the urine would reve a marked degree of bacteriuria in at least 90 per cen of the cases" and that "the examination of t intestinal contents as voided would reveal unmista able evidence of a high degree of abnormal putrefacti in every case." He suggests further that "it is alo these lines that we will ultimately find the comm cause, if such exists."

We stated in our report that there had been a fu clinical examination of every case, and that cases infection of the urinary tract had been excluded fro the series. This examination naturally included bacteriological examination of the urine, and we wi to repeat, in reply to Dr. Watson's question, that no case was there a bacilluria or pyuria, still less "marked degree of bacteriuria." Further, even t most pronounced cases of renal infection do not, as rule, show the syndrome characteristic of th toxæmias of pregnancy. We have, however, noted t development of pyuria in a number of our cases. Th did not occur during the acute toxic stage of th illness, but after such an interval that it is to regarded as a complication and not as a cause of th condition.

As regards intestinal putrefaction we find it mo difficult to speak, for bacteriological examination

[1] The Clinical Incidence and Aspects of the Trade Sk Cancers, Jour. of State Medicine, 1927, xxxv., No. 9.
[2] Murray, J. A.: Research Defence Society, July, 19 p. 12.

he stools was not carried out. If, however, we take Dr. Watson's criterion—"the sound use of the naided senses"—then we can say that while constipation was common we have not noted any ndication of "intestinal putrefaction" as we understand the term. If intestinal putrefaction or "intesinal auto-intoxication" be the cause of the toxæmias f pregnancy, as suggested by your correspondent, ve find it difficult to explain the good therapeutic esults which are obtained by two such different nethods of treatment as the Dublin and the troganoff methods. The success of the Dublin nethod appears to support Dr. Watson's idea that ntestinal toxæmia is an important causal factor inasnuch as colonic lavage is an essential part of the reatment. On the other hand, Stroganoff, who reports ven better results, never washes out the colon, and mpties the rectum only if it is loaded. Again, our wn results are as good as those reported by the)ublin school, but the only important factor in ommon is starvation. We do not deny, of course, hat the absorption of toxic waste products from the ut must have an injurious effect, and we advocate he stimulation of elimination by the bowel in this s in any other toxic state. We consider that more nportant than intestinal stasis is the effect of the igestion of protein. Our insistence upon this point s an essential part of our method of treatment has, 'e regret, escaped the comment both of your corre-)ondent and of our reviewer in your columns. It is gnificant, we think, that both in the Dublin method id in our own great stress is laid on the withdrawal ' protein from the diet. We state in our report our easons for suggesting that protein acts deleteriously such cases in virtue of its protein structure and the sulting breakdown products and not because of its trogen content.

We are, Sir, yours faithfully,

J. N. CRUICKSHANK,
J. HEWITT,
K. L. COUPER.

Glasgow, Dec. 17th, 1927.

MEMORIAL TO THE LATE PROF. FRANCIS MITCHELL CAIRD.

To the Editor of THE LANCET.

SIR,—A number of the friends of the late Mr. Francis itchell Caird, a former lecturer on surgery in the xtra-Mural School and professor of clinical surgery the University of Edinburgh, having expressed a sire to perpetuate his memory in the Edinburgh edical School, a committee was appointed by the edical Faculty of the University and the Council of e Royal College of Surgeons to consider what step ould be taken for this purpose.

The committee and the two bodies which it repreited decided that the memorial should include a ze and medal open for competition to graduates of University and Licentiates and Fellows of the yal College of Surgeons of Edinburgh who have died for two years in Edinburgh and have been alified as practitioners for not more than seven ars. The prize, offered biennially, will be awarded the best essay in surgery or surgical pathology sed on personal observation and research, the subject ng chosen by the candidate.

Subscriptions of £1 1s. and upwards will be gratefully eived. Those who have not been approached ectly by the committee and are desirous of subibing are invited to send their subscriptions by que or postal order, payable to the Francis Mitchell rd Memorial Fund, per the accountant of the iversity, and addressed to him at the University of inburgh, Old College, Edinburgh.

We are, Sir, yours faithfully,

ALEXANDER MILES,
President, Royal College of Surgeons of Edinburgh.

J. LORRAIN SMITH,
Dean of the Medical Faculty, University of Edinburgh.

dinburgh, Dec. 17th, 1927.

MERCUROCHROME INTRAVENOUSLY.

To the Editor of THE LANCET.

SIR,—In response to the wish expressed by Mr. W. H. Martindale, Ph.D., in his letter to THE LANCET of Dec. 10th I send a brief report of experience with the intravenous injection of mercurochrome 220 in cases of acute and chronic gonorrhœa in adult males. Last year 14 cases of gonorrhœa under my care as out-patients in the V.D. department at Guy's Hospital were treated with a series of intravenous injections of mercurochrome 220; three of these cases were suffering from acute gonorrhœa with no complication, the remainder were in the chronic stage and suffering from chronic prostatitis, seminal vesiculitis, or both. The scheme of treatment was as follows:—

First day	..	10	c.cm. of 0·5	per cent. mercurochrome.
At intervals of 2–3 days later		20	,, 0·5	,, ,,
		10	,, 1·0	,, ,,
		10	,, 1·0	,, ,,
		20	,, 1·0	,, ,,
		20	,, 1·0	,, ,,
		20	,, 1·0	,, ,,

Ten of the 14 cases completed this series of injections; in a few there were slight variations in the time intervals between injections and in the quantity of the injections. No serious or marked reactions were encountered following injections in any of these cases, but slight reactions were noted in five cases—viz.: (1) transient vomiting and diarrhœa, (2) vomiting only, (3) a feeling of general malaise, (4) diarrhœa for two days, (5) abdominal pain but no vomiting or diarrhœa.

There appeared to be no definite correlation between these reactions and the concentration of the injection or the quantity of mercurochrome; the relationship is expressed below.

No. of injection.	Quantity.	Concentration.	No. of slight reaction.
10	10 c.cm.	0·5 %	2
5	20 c.cm.	0·5 %	1
22	10 c.cm.	1·0 %	2
22	20 c.cm.	1·0 %	2

In all cases, with one exception, further injections were given following the reaction and in one only was a second reaction experienced. In three of the cases under treatment the urine or urethral discharge was noted to be coloured pink; this was associated with a reaction (vomiting) in one case only. All the cases under treatment were young adult males attending as out-patients after their day's work had ceased; apart from the urethritis or its complications they were all in good general condition.

The injections administered were from bulk solutions of mercurochrome in distilled water, which were stored in glass flasks in the dark; such solutions were used up to 14 days from the date of preparation. In two cases the mercurochrome solutions utilised for the series of injections contained 50 per cent. glucose, no reactions were experienced in either of these two cases.—I am, Sir, yours faithfully,

Devonshire-place, W., Dec. 13th, 1927. V. E. LLOYD.

THE REMOVAL OF TONSILS: A "BLOODLESS" METHOD.

To the Editor of THE LANCET.

SIR,—Although I have had a vague knowledge of the existence of a La Force guillotine and a dubious opinion on its "bloodless" surgery for some time, it was not until this year that I saw it in use.

Feeling that there may be many, who, as I was, are ignorant of its value, I venture to bring to your notice an instrument which has been in constant use in America since 1914. Very briefly described it is a guillotine of the Sluder type, but possessing two blades, one a crusher and hæmostat, the other a cutter. The tonsil is engaged in the fenestra of the

instrument and the crushing blade forced down external to the capsule in the usual way. The crusher is now held firmly in position by a screw and thread arrangement for five minutes, accurately timed by watch or sand-glass, as used for timing egg-boiling. The screw attached to the cutting blade is now brought into action and the tonsil cut off just medially of the tissues held by the hæmostat blade. It is then removed by forceps. The screw holding the hæmostat down is now turned in opposite direction and the guillotine removed.

In favourable cases the tonsils may be enucleated with the loss of only a drop or two of blood, just enough to colour the mucus in the pharynx: there is no need for swabs—and in my cases there has been no bleeding later. It must be acknowledged that there is an occasional failure, for the instrument is not so easy to use as the O'Malley or Ballenger guillotine, then resort must be had to dissection. But the same occasional failure must be laid to all guillotines, as I am certain that there are tonsils, though very few, which can only be removed by dissection. I am convinced that wherever possible the guillotine should be used as no dissection operation that I have done myself, or seen others perform, leaves such a clean and regular fossa or causes so little trauma.

A very similar instrument, but one which I have not seen, was devised by W. Hill and G. Elphick in 1914, and I should be very interested to know their views on the method after this lapse of time.

I am, Sir, yours faithfully.

Manchester, Dec. 6th, 1927. LINDLEY SEWELL.

ALKALI TREATMENT IN FEVERS.

To the Editor of THE LANCET.

SIR,—In reply to Dr. Osman, my results are very relevant to the question of the alleged benefit of alkalies in preventing nephritis in scarlet fever, because we have found on a former occasion that, if the alkali debt of the tissues, incurred in the acute stage, is repaid during that stage, no evidence can be obtained of any acidosis throughout convalescence. To confirm this observation, I have recently tested the alkali tolerance of 62 patients in the third week of disease whose urine had been rendered alkaline during the acute stage by repeated four-hourly doses of 1 to 2 g. of alkali (doses according to age).

The urine of a normal child on a mixed diet can be usually rendered alkaline with 5 g. of soda and that of an adult with 10 g. In this group, in 6 cases the urine was rendered alkaline with 1 g., in 13 with 2 g., in 18 with 4 g., in 16 with 5 g., in 4 with 7 g., in 2 each with 8, 10, 12, and 14 g. respectively. Those needing the larger doses were adults and adolescents, those with smaller doses were children. These doses were administered in the same manner as in the acute stage, each specimen of urine being tested with litmus immediately on passage. It will be seen that the alkali tolerance of these patients is rather less than normal, indicating that there is no alkali deficiency during convalescence after treatment with alkalies in the acute stage. Moreover, the urine remained alkaline in 50 per cent. of the cases for the succeeding 24 hours after stopping their administration.

I think, therefore, it is a justifiable conclusion from my experiment, extending over 17 years and 8000 cases, that, if the incidence of nephritis is almost identical in those with a deficient alkaline reserve and those whose alkaline reserve has been restored to normal, such a deficiency cannot play any very important part in the ætiology of this particular complication.—I am, Sir, yours faithfully,

B. A. PETERS.

Ham Green Hospital, Bristol, Dec. 19th, 1927.

ELIZABETH GARRETT ANDERSON HOSPITAL.—On Dec. 15th the foundation-stone of the new extension building was laid by Sir Alan Garrett Anderson, the son of the founder. The sum of £70,000 has been raised towards enlargement of the hospital.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

MEDICAL AND DENTISTS ACTS AMENDMENT BILL.

IN the House of Commons on Friday, Dec. 16th, Sir KINGSLEY WOOD (Parliamentary Secretary to the Ministry of Health) in moving the second reading of the Medical and Dentists Acts Amendment Bill, said that the Bill embodied an agreement between the Irish Free State and this country which was designed to meet an administrative problem resulting from the establishment of the Irish Free State and the legislation consequent thereon. As a result of that legislation the General Medical Council ceased to exercise any authority or control over the medical profession in the Irish Free State, and also ceased to be able to place on the Register here students who obtained their medical qualification in the Irish Free State. That position was regarded on both sides as unsatisfactory and negotiations had been taking place for some time. In the meanwhile by an interim arrangement the General Medical Council had agreed to accept for the Medical Register here students with qualifications obtained in the Irish Free State. One of the objects of the Bill was to validate that arrangement. An agreement was reached in the early part of this year which was set out as Part 1 of the Schedule of the Bill. In this matter the British Government had been assisted by Sir Donald MacAlister, the President of the General Medical Council, and the agreement had the concurrence and the support of the Council. On the one hand the General Medical Council would continue to admit to the United Kingdom Register all persons who prior to the establishment of the Irish Free State would have been admissible in respect of qualifications obtained in the area which was now the Irish Free State. Secondly, they would have all the power formerly possessed by them of controlling the examinations giving the right of such admission so far as was necessary for keeping the United Kingdom Register. On the other hand, the Irish Free State would establish an Irish Free State Register and would have complete control of that Register in the Irish Free State. Provision was made for admission to the Register on equal terms of all persons on the United Kingdom Register. The position in regard to the Dentists Act was practically similar, and it was embodied in Part 2 of the Schedule. The agreement required legislation in both countries, and in the Free State legislation had been passed to give effect to the medical part of the agreement and had received the Royal Assent. The legislation in regard to the dental side in the Irish Free State would involve two Bills, and he understood that that legislation was now going through. He thought that this was a happy solution of the difficulties that had arisen.

The Bill was read a second time.

NURSING HOMES (REGISTRATION) BILL.

On the consideration of the Nursing Homes (Registration) Bill,

Captain CAZALET moved the following new clause to give power to the Minister of Health to exempt Christian Science nursing homes:—

"(1) The Minister of Health may grant exemption from the operation of this Act in respect of any nursing home, as respects which he is satisfied that it is being or will be carried on in accordance with the practice and principles of the body known as the Church of Christ Scientist. (2) It shall be a condition of any exemption granted to a nursing home under this section that the nursing home shall adopt and use the name of Christian Science Nursing Home. (3) An exemption granted under this section in respect of a nursing home may at any time be withdrawn by the Minister if it appears to him that that home is no longer being carried on in accordance with the said practice and principles."

He said that the first clause of the Bill made it compulsory for any nursing home in the future to have in charge of it a qualified medical doctor or a qualified nurse. The method of healing disease as practised by Christian Scientists was entirely different from that of the medical profession. It was obvious, therefore, that if there was to be a qualified medical man or a qualified nurse at the head of these homes there must be a period when either he or she would disapprove of the methods adopted in the Christian Science homes. Those homes did not take maternity cases, cases requiring surgical operations, or cases of infectious disease. There were at present 30 or 40 of these homes in England and Wales. If they could not obtain exemption under the Bill the result would be that Christian Scientists would be subjected to an intolerable amount of persecution merely for their religious convictions. The only other alternative was that these homes should be closed. No attempt was made under this new clause to evade any of the rules and regulations in regard to ventilation, sanitation, or such

matters. These homes were prepared to submit to any degree of inspection and registration desired by the Ministry of Health, and he understood that the new clause conformed in every way with the requirements of that Department.

Viscountess ASTOR seconded the new clause.

Sir CYRIL COBB, speaking as a member of the Select Committee, said he thought the new clause raised some difficulty. The main object that the Select Committee had before it, and which was embodied in the Bill, was to ensure that in all institutions which professed to be nursing homes there should be qualified nursing service for the public. They were not willing to make any exemptions whatever except those contained in Clause 6 of the Bill, and those were cases where people were in institutions of the nature of nursing homes for which they did not pay. They had among others cases of medical men who kept nursing homes where they received patients for fees, and a very great deal of evidence was given and pressure brought to bear upon the Committee to induce them to make a recommendation that in all cases where nursing homes were run by a medical man for gain there should be an exemption from the provisions of the Bill. They were told that the General Medical Council would ensure that such homes were properly run and provided with qualified nurses. The evidence, however, which came before the Committee showed that some of the very worse cases of neglect occurred in these nursing homes run by doctors, and the Committee found it quite impossible to make any recommendation for the exemption of such homes. The House was not dealing with a religious question at all, but with a medical question involving the protection of the public, and they should be very chary of making an exemption in the case of this particular religious body which wished to conduct treatment in homes of a special character entirely and absolutely distinct from what was generally known as nursing treatment. They had defined in the Bill what a qualified nurse was, and had provided throughout that qualified nurses were to be employed in these homes. The only relaxation of these rules was in connexion with nursing homes in existence at the present moment, and which would be carried on under regulations made by the local authorities. A certain amount of time was allowed to such homes in which to get a better staff, but in all other cases the Committee felt that no exception should be made. Therefore it was extremely difficult for him as a member of the Select Committee to agree to this clause. He must vote against it, although he did not do so with any idea of injuring a particular religious body.

Mr. MORRIS said if people believed that exemption should be granted why did they say that only permissive power to exempt should be granted to the Ministry of Health? It seemed to him to indicate that the supporters of the clause had no clear belief in their own case. Another objection he had to the clause was that it was taking the Minister of Health away from his proper duties and turning him into a theological expert. Why should the Minister of Health be the High Priest of the Christian Science Church and see that their homes were properly conducted? By allowing the name of Christian Science nursing home they were opening a new loophole. Many homes might adopt that name, and how were they to prove that people were qualified Christian Scientists? He hoped that the clause would be defeated.

Sir RICHARD LUCE said that as a member of the Select Committee he opposed the clause for several reasons. The evidence before the Committee made it perfectly evident that it was not wise to grant exemption to homes run by medical men. It would therefore be very unfair that an exemption should be given to any other body. The mover of the clause had stated there were something like 30 or 40 Christian Science nursing homes in the country. That was not at all in accordance with the evidence given to the Committee by the representative of the Church. At that time he said that there were only three Christian Science nursing homes in the country, but there were other places where patients could go to receive treatment which could not in any way be called nursing homes. He said they were a kind of boarding-house. There had either been an enormous growth in the number of Christian Science nursing homes during the last year, or else the boarding-houses were now being included. If the great majority of those homes were such as need not come under the name of "nursing home" there would be no very great hardship in closing down the few that were definitely nursing homes. But if they were really to become nursing homes there would undoubtedly be control over them to see that they kept up to the standard exacted in the case of other nursing homes. Under this clause there seemed to be no proper guarantee that the homes which were to be exempted under it would be properly inspected. The Minister did not take the responsibility of inspecting them. The evidence before the Committee was that there was absolutely no body which controlled these homes in any way. In fact, the representative of the Central Body knew extraordinarily little about the homes at all. He said that it might be possible to set up a central body to control the homes under directions from Boston, but at the time there was no such body in existence. That was a very nebulous state of affairs. There were many other methods of treatment in vogue in this country besides those of orthodox Christian Science. What was there to prevent in the case of any of those other methods the setting up of homes, and if this exemption was given how could any Minister of Health justly claim to refuse exemption in those cases also? It seemed to him that they were setting up a very dangerous precedent which would be very difficult to resist in the future. He hoped the House would not agree to the clause.

Mr. NEVILLE CHAMBERLAIN (Minister of Health) said he was not a Christian Scientist and he did not profess even to know what were the tenets of Christian Science, but so far as it was the practice of Christian Science to substitute for medical and surgical skill some other methods he entirely disapproved of it. But he wished to ask the House to consider what would be the effect of rejecting the clause and consequently bringing institutions carried on by Christian Scientists under the provisions of the Bill. They were not concerned with the doctrines of Christian Science; what they were concerned with in this Bill was to see that no member of the public was deceived into entering one of these institutions under the impression that it was a nursing home in the sense in which that term was generally used. Christian Science was not carried on as medical treatment; it was not a species of quackery which pretended to be something that it was not. They might agree or they might not agree with it, but there was no pretence that Christian Science treatment was an alternative to medical treatment or was a variety of medical treatment. Without some form of exemption there was little doubt that these homes would come within the provisions of the Bill and be required as a condition of continued existence to appoint a qualified nurse to be resident in the home as its superintendent. But to do so would be contrary to their beliefs. It would be a case of camouflage and the result would be to do the very thing some of his hon. friends wanted to prevent. They would be deceiving or likely to deceive the public. On that account he suggested to hon. Members who were alarmed at these things that they were unwise to attempt to bring these homes within the provisions of the Bill. If such a home refused to appoint a qualified nurse it would be closed. Could they contemplate the possibility of doing that?

Dr. VERNON DAVIES said that the Bill referred to homes which were nursing homes. If the Christian Scientists referred to their homes as homes of rest or homes of treatment they would not come under the Bill at all and would not deceive the public.

Mr. CHAMBERLAIN said that was not a matter which a layman could decide; it was a legal question. It all depended whether institutions of the kind which they were discussing would come within the definition of nursing homes in the Bill, and he was advised that they would. Unless persons who desired Christian Science treatment could obtain it in their own homes it seemed to him that there would be great force in the argument of Captain Cazalet that this would be regarded as a piece of religious persecution. These were the considerations which had led him to think that the inclusion of these institutions under the provisions of the Bill offered difficulties so serious that he could not contemplate it with complacency. He had therefore to consider what was the other alternative, and in doing that he had had in mind the only consideration which concerned him—namely, the protection of the public. Provided that it was possible to isolate these particular institutions, separating them from such homes as might be set up by unqualified persons posing as medical practitioners; provided that one could get some test by which they could be separated, and could ensure that they could not call themselves by a title which would give rise to misunderstanding; and if one could also provide a safeguard so that on any change taking place in the situation an exemption could be withdrawn, then the objects which he had in view could be secured. He thought that with one exception the clause moved by Captain Cazalet carried out his (Mr. Chamberlain's) ideas. He agreed with Sir Cyril Cobb in his protest against the exemption of any kind of nursing home; but the whole point was that the Christian Science homes were not nursing homes. It seemed to him that the weak point of the clause as it stood was that they were still to be called nursing homes and he would suggest to the mover of the clause that he should use some other title which would separate those institutions entirely from nursing homes and afford no excuse to anyone to sa that he had gone there under a misapprehension. He thought that they might be called "Christian Science Houses," a term which did not involve any suggestion of medical practice.

Captain CAZALET said that he had put down the clause in its present form because they were informed that that was the best way. They were willing to take any name to effect their purpose which the Minister might suggest and which would be agreeable to the House.

Mrs. PHILIPSON said that she thought that a great difficulty would be removed if the suggestion of the Minister was adopted. She was anxious, not only from the point of view of the medical and nursing professions, but also from the point of view of the public, that all these homes should be registered and be under the control of the Minister of Health. She had been told by the chairman of the Christian Science Church that the members of that Church were perfectly willing that their homes should be registered, and if that course was taken there would be no loophole for anyone to set up a nursing home for any other purpose. She hoped that the mover and seconder of the clause would not insist upon any course which would jeopardise the passing of the Bill.

Lieut.-Colonel FREMANTLE said that he would accept the new clause at once if he had simply to consider the question of helping the work of Christian Science nursing homes so far as they were relieving people and so far as this question was concerned with liberty of conscience and freedom of experiments. But he hoped the House would recognise how grave was the position of medical men in being called upon to make such an exemption. What they were concerned with was the protection of the public. He had nothing to say against these particular homes and he knew nothing about them. The Minister of Health knew nothing about them, and the House had not been informed in that respect. They were being asked to give a blank cheque not only to these homes but to any others who came along with the same credentials. He understood that there was no body in this country representing the Christian Science faith which could certify these homes. If the Christian Science movement had been able to increase the number of its nursing home from 3 to 37 in 12 months what was to prevent them going ahead at the same rate? These places would be well equipped because they belonged to an affluent community. They would attract people who had diseases and it would become practically impossible to know whether they were nursing homes or not. The more ignorant portion of the public did not know the difference between Christian Science and any other science, and he was afraid that this would be opening the door to wide deception of the public. If they opened the door to this extent how could they prevent it being opened to say the much older and more widespread cult of homœopathy? Yet the proposed new clause did not provide for any such exemption. It would be the same with the osteopaths. The proposed exemption seemed to him most dangerous. He would like to know whether the Minister and his officers would have the right of inspection. If so, should that not be put into the clause? Personally he could not vote for the clause unless they had some definite understanding of how it was going to be carried out and how the position stood in relation to the safety of the public.

Mr. G. HURST said that he had intended to oppose the clause, but the concession which had been made by the mover seemed to him to remove all the suspicions and distrust which its opponents entertained.

Mr. C. EDWARDS said that he was very suspicious of people holding these peculiar ideas and he thought that if any registration or control was necessary in nursing homes or anywhere else it was also necessary in homes carried on by these peculiar people. Unless these places could be placed altogether outside the category of nursing homes he thought the House ought not to agree to the clause.

Dr. VERNON DAVIES said that he was grateful to the Minister for the suggestion he had made because he thought that the alterations of the words "nursing home" to "house" got over a very great deal of difficulty. Although he spoke as a medical man he could not associate himself fully with the speech of Lieut.-Colonel Fremantle. They had to recognise in this country that people had a right to their own opinions, and if they were adults they had a right to do what they liked with their lives. If a certain section of people in this country believed that the principles of Christian Science were such that they could get a better effect from them than from the ordinary medical and surgical skill that was available they had a perfect right to hold and act upon that view; and if it was necessary that homes or houses should be provided for that particular kind of treatment they had a right to go into them. Neither medical men nor Members of Parliament had a right to interfere provided they were assured that the public were safeguarded and were not deceived. Whether such persons when they got into these homes would be well or ill treated was not the concern of the community; they had gone there of their own free will. He thought, therefore, that the House could with safety accept the new clause subject to redrafting. He would suggest, however, that the Minister of Health should require that the head of the Christian Science religion in this country should actually certify that a particular place was one of their houses carried on according to their principles and thus place the onus on him.

Sir KINGSLEY WOOD said that the head of the Church would give that certificate. He suggested that they should insert in the second paragraph the word "house," and he would undertake that before the Bill reached the House of Lords the question of using some other word such as "institution" would be considered.

The clause was read a second time.

On the motion of Captain CAZALET the words "nursing home" were deleted from the clause and the word "house" was inserted.

The clause as amended was added to the Bill.

Mr. G. HURST moved an amendment to Clause 5 (Inspection of Nursing Homes) with the object of emphasising to those who had to administer the Act, that when a medical officer of health deputes some officer to visit and inspect these nursing homes he should bear in mind that the official primarily qualified to deal with questions of nursing was a qualified nurse.

Miss WILKINSON seconded the amendment which was agreed to.

Mr. CHAMBERLAIN moved amendments to Clause 8 to provide that the council of every county as respects that county and the council of every county borough as respects that borough shall be the local supervising authority under the Act; and authorising a county council to delegate to a district council any of its powers under the Bill.

The amendments were agreed to and the Bill was afterwards read a third time.

HOUSE OF LORDS.

FRIDAY, DEC. 16TH.

MENTAL DEFICIENCY BILL.

The Mental Deficiency Bill was read a second time on the motion of Viscount GAGE.

LANDLORD AND TENANT BILL.

The Landlord and Tenant No. 2 Bill was considered on Report.

On Clause 17 (which deals with the holdings to which Part 1 of the Bill applies),

The Duke of NORTHUMBERLAND moved to insert at the end of Subsection 3 the words: "A profession for the purpose of this section means the habitual and regular practice of a learned or skilled profession as the chief means of livelihood." He said that unless the word "profession" had a definite meaning in law, owners of house property could not possibly know where they stood under this Bill or what obligations or commitments they might incur. Surely the object of adding professions to businesses and trades was that the Act should apply to those learned and scientific professions which were absolutely essential to an civilised society—namely, lawyers, solicitors, doctors, dentists, surveyors, and so forth. He was not necessarily wedded to this particular definition, and if the Lord Chancellor was prepared to consider the possibility of a better definition than the one he had suggested he would be very happy to accept it.

Viscount SUMNER supported the amendment. He thought it was essential that there should be some attempt at a definition and the difficulties which were not inconsiderable should not deter them from making such attempt. If one could be sure what the policy was which underlay these words in the Bill it would be much easier to say what profession within the scope of that scheme was meant to be. As the matter stood it appeared to him that in every case it would be a question of fact whether or no premises were used for carrying on a profession. It would be a question of the user of the premises. He thought that the person who used X rays and produced an ambiguous and unattractive picture of a patient's abdomen was a very good instance. He was a person whom no one, he thought, would regard as a tradesman, and he did not think that they could call him a business man. But if he belonged to a profession, what profession did he belong to? There were other cases that could be suggested without difficulty and they amounted to quite a considerable number, particularly in large cities. In default of a better the amendment of the noble Duke was one which he would cordially support. It would be an improvement to the clause on the plain and simple ground that it would tend to reduce the number of disputes.

The LORD CHANCELLOR said that the Bill prima facie applied to premises used for trade, but the same difficulties might occur in regard to premises used for professions

r instance, there was the case of a doctor who wanted add a surgery to his house. Surely it was reasonable at if it was desired to make an improvement of that nd, and if at the end of the term some value remained the landlord, the tenant should have compensation for e unexhausted value of the improvement. The profes-nal man had no right in respect of goodwill, because the odwill of a profession was personal goodwill and was in sense attaching to the property. The noble Duke wanted go through the perilous process of defining the word rofession." What profession was not learned or skilled ? believed that those words would raise rather difficult ints for determination. The amendment also proposed provide that the profession must be carried on as the ief means of livelihood. Were they to inquire whether doctor or other professional person had means of his n on which he partly or perhaps mainly subsisted ? At outset it might be that he got very little profit from profession and might have to rely on his private income. re they for that reason to cut him off from compensation having found the money for a surgery and so forth he sequently left it ? It seemed to him that that would not only dangerous but unfair. The other qualification s that it must be " habitual and regular practice." There had some sympathy with the noble Duke, and would e to meet him. If he agreed and was prepared to with-w his amendment he (the Lord Chancellor) would move insert in the proviso in Subsection 3 the word " regu-ly."

The Duke of NORTHUMBERLAND withdrew his amendment l the Lord Chancellor's suggested amendment was eed to.

HOUSE OF COMMONS.

WEDNESDAY, DEC. 14TH.

Sickness and Mortality among Troops in China.

Mr. TREVELYAN asked the Secretary of State for War what the statistics of sickness and mortality had been in British force in China in the months of July, August, tember, October, and November; and (2) what the istics of sickness and mortality had been in the British e at Shanghai in the months of July, August, September, ober, and November.—Commodore DOUGLAS KING nancial Secretary to the War Office) replied: The infor-ion is as follows: 1. Approximate average number in pital at Hong Kong, Shanghai, Tientsin, Pekin, and i-hai-Wei :—

Month.	Officers.	Other ranks.
uly	39	1309
ugust	25	1132
eptember	24	1191
ctober	14	799
ovember	13	713

Number of deaths among the troops not forming part he permanent establishment in China, which have been rted to date :—

During the month of—	Died—		
	of illness.	of wounds.	by drowning.
, 1927	6	—	—
ust, 1927	9	—	—
ember, 1927 ..	5 (*a*)	1	1
ber, 1927 ..	4	—	—
ember, 1927 ..	—	—	—
Totals	24	1	1

(*a*) Includes one officer.

Loss of Working Days through Sickness.

r. SMEDLEY CROOKE asked the Minister of Health the of working days caused by sickness during the years and 1926.—Mr. CHAMBERLAIN replied: There are no available as regards the general population. As ds persons insured under the National Health Insurance (some 14,000,000 in England and Wales), it has been mated by reference to the sums paid by way of sickness disablement benefit under the Act, that the time lost ickness in England and Wales was :—During 1925 rds of 150,000,000 working days; during 1926 upwards 39,000,000 working days. In making these estimates nt has to be taken of a number of uncertain rs, and the result can only be regarded as a rough oximation.

THURSDAY, DEC. 15TH.

Dangers in the Use of Acetylene Plant.

. GIBBINS asked the Home Secretary whether his atten-had been called to the recent fatal accident whereby two boilermakers using an acetylene burner were gassed and burnt to death inside the tank of a ship in Clarence Dock, Liverpool; and if he would consider whether special regulations are needed to minimise the dangers caused by the use of mechanical appliances in confined spaces.—Sir WILLIAM JOYNSON-HICKS replied: The circumstances of this accident were exceptional. It was due to the men having blown a large quantity of oxygen into the confined space of the tank for the purpose of removing some smoke which had accumulated there from a smouldering sack and having then entered the tank with a lighted candle. The accident was not connected in any way with the use of acetylene plant, but I may say that the danger from fumes or gas in connexion with such plant is fully recognised and special precautions against it are proposed in the draft new Shipbuilding Regulations.

Small-pox at Newcastle Workhouse.

Mr. GROVES asked the Minister of Health how many cases of small-pox had been reported from the workhouse at Newcastle-on-Tyne; how many of them had been vaccinated or revaccinated; when was the last general revaccination of the inmates prior to this outbreak; and whether any inmates recently vaccinated or revaccinated who were attacked by small-pox were suffering from any other disease at the time of the attack.—Mr. CHAMBERLAIN replied: Forty-five cases of small-pox have recently occurred in the Newcastle-on-Tyne Poor-law Institution. Forty-two of these cases had, at the time of infection by small-pox, been vaccinated in infancy only, and their ages ranged from 17 to 70 years. In addition, one had been revaccinated ten years ago. Prior to the present outbreak there has been no general revaccination of the inmates during the past 15 years. The answer to the last part of the question is in the affirmative, but in none of these cases was the vaccination successful.

Municipal Sunlight and Vapour Baths.

Lieut.-Commander KENWORTHY asked the Minister o Health whether his attention had been called to the succes: of the recently opened sunlight and vapour baths of the Hull Corporation; and whether he would recommend a similar system to other municipalities.—Mr. CHAMBERLAIN replied: I am aware of the establishment referred to, and recently paid a visit to it myself. While I regard the Hull baths as an interesting and valuable experiment, I do not think it has been long enough in existence to justify the somewhat unusual step proposed.

Mr. GROTRIAN: Will the right hon. gentleman take care that these baths are not instituted except under proper expert advice and management ?—Mr. CHAMBERLAIN: I do not think there is any deficiency in that respect.

Lieut.-Commander KENWORTHY: Is the right hon. gentleman aware that the chairman of the Baths Committee is a senior medical practitioner ?—Mr. Chamberlain: I do not think there is any reflection to be made on these baths.

Lay Practitioners and Electrical Treatment.

Mr. HARDIE asked the Minister of Health whether he would take steps to obtain powers of control over lay establishments for treatment by ultra-violet and other radiations.—Mr. CHAMBERLAIN replied: The object sought in the question could only be obtained by legislation, and I am not, as at present advised, prepared to introduce legislation for the purpose.

Scientific Societies and Income-tax.

Mr. CLAYTON asked the Chancellor of the Exchequer whether he was aware that, pending the decision of certain cases before the High Court, the return of income-tax to certain scientific societies hitherto regarded as charitable institutions was being withheld; and, as such action, especially in the cases of those societies which have annually to distribute funds for research purposes, was a hardship and one which must necessarily curtail research work carried out in universities and university institutions, would he arrange to have these taxes refunded.—Mr. CHURCHILL replied: Appeals in the High Court are pending against decisions of the Special Commissioners of Income-tax holding that two societies were not entitled to exemption from income-tax as charities. These two societies, after discussion between representatives of a large group of learned and scientific societies and the revenue authorities, had been taken as test cases. Unless these decisions of the Special Commissioners on appeal are reversed by the courts, it would not be possible for the Inland Revenue to continue to make repayments of tax in respect of income of the general funds of other societies of the same character. If, however, my hon. friend is aware of any cases in which relief has not been admitted in respect of income which is subject to a specific trust for application to research in a university or university institution, I shall gladly make

further inquiry on being furnished with the necessary particulars.

MONDAY, DEC. 19TH.

Public Hospital Accommodation in India.

Mr. SCURR asked the Under Secretary of State for India whether any information was available as to the provision of public hospital accommodation in British India in relation to the needs of the population.—Earl WINTERTON replied: The latest information available relates to the year 1925. The total number of State, public, local, and private aided hospitals and dispensaries in British India in that year was 3972, and the number of beds available 45,049. The numbers of indoor and outdoor patients treated were 738,570 and 4 0,472,780 respectively.

Women's Hospitals in India.

Mr. SCURR asked the Under Secretary of State for India how many women's hospitals existed in British India both for maternity and general cases.—Earl WINTERTON replied: The total number of female hospitals and dispensaries in British India recorded in the official reports for 1925 was 173 with 4249 beds available. The number of beds available for women in general hospitals was 11,260.

The Services.

COMMISSIONS IN THE ROYAL ARMY MEDICAL CORPS.

A LIMITED number of commissions in the Royal Army Medical Corps, not exceeding 25, will be offered in January next. Applications for consideration should reach the Under Secretary of State, War Office (A.M.D.I.), Whitehall, London, S.W. 1, not later than Jan. 10th, 1928. There will be no entrance examination.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Capts.: J. H. Fergusson to *Egmont* for hospital ship *Maine*; and W. W. Keir to *Tamar* for R.N. Hospl., Hong-Kong.

Surg. Comdrs.: H. M. Whelan to *Egmont* for hospital ship *Maine*; T. Creaser to *Hood*, and as squadron medical officer; G. D. Walsh to *Revenge*; B. R. Bickford to *Iron Duke*, as squadron medical officer and as specialist in ophthalmology; T. W. Jeffery to *Nelson*, and as fleet medical officer; F. J. D. Twigg to *Victory*, for Haslar Hospl., and as specialist in ophthalmology; A. R. Schofield to *Vernon*; G. H. Hayes to *President*, for six months' post-graduate course; H. H. Ormsby to *Dartmouth*; G. A. S. Hamilton to *Tiger*; and H. E. Perkins to *Osprey*.

Surg. Lt.-Comdrs.: B. S. Collings to *Nelson*; J. F. Ainley to *Victory*, for R.N. Barracks; and G. E. Heath to *President*, for three months' post-graduate course.

ROYAL NAVAL VOLUNTEER RESERVE.

Surg. Capt. W. K. Wills is placed on the Ret. List.

ROYAL ARMY MEDICAL CORPS.

Lt.-Col. S. B. Smith, having attained the age fixed for compulsory retirement, retires on ret. pay.

Maj. J. H. Campbell to be Lt.-Col., vice Lt.-Col. S. B. Smith to ret. pay.

Temp. Lt. A. Nicolson relinquishes his commn.

D. W. Stuart to be Temp. Lt.

ARMY DENTAL CORPS.

Lts. to be Capts.: J. B. Cowie, R. E. Edwards, and F. S. S. Whiter (Temp. Flying Officer, R.A.F.).

TERRITORIAL ARMY.

Maj. G. E. J. A. Robinson, having attained the age limit, is ret. and retains his rank, with permission to wear the prescribed uniform.

ROYAL AIR FORCE.

Flight Lt. E. A. Wheeler (temporary Major, Dental Surgeon, General List) is promoted to the rank of Honorary Squadron Leader.

DUNDEE ROYAL INFIRMARY.—The directors of this institution have received notification that the trustees of the late Sir James Duncan have set aside £30,000 for the Infirmary out of the residue of the estate.

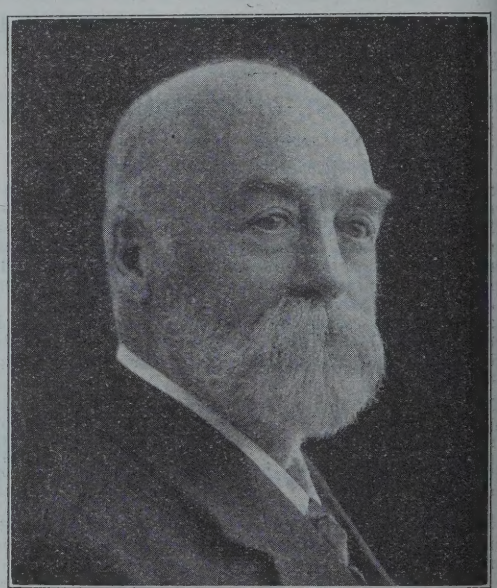
Obituary.

AMAND McCONNEL ROUTH, M.D., B.S., F.R.C.P. LOND.,

CONSULTING OBSTETRIC PHYSICIAN TO CHARING CROSS HOSPITAL.

WE regret to announce the death of Dr. Amand Routh, the well-known obstetric physician, which occurred at his country house, Grimston Court, near Folkestone, on Dec. 18th, in the seventy-fourth year of his age.

Amand Jules McConnel Routh, son of the late Dr. C. H. F. Routh, whose work and writing in the same sphere as that of his son were prominent in their day, was born in 1853, and received his early education at King's College School. Later he joined the medical school of University College Hospital. Having taken the double diploma of the English colleges he graduated in medicine at London University in 1881, proceeding to the doctorate in the following year, when he also took the M.R.C.P.



DR. AMAND ROUTH.

He was promptly elected physician to the Marylebone Infirmary and was also appointed anæsthetist at the Samaritan Free Hospital for Women, where his father was a member of the medical staff and where he also became out-patient physician; but in 1883 he was elected obstetric physician to Charing Cross Hospital, a post which he held for 30 years. He remained on the staff of the Samaritan Hospital also until 1901, and his distinguished career in his specialty justified the early openings thus offered him, for his work here and at Charing Cross Hospital advanced him to a leading position in gynæcology and obstetrics not only in London but throughout Europe. The staff at Charing Cross were at this time reinforced by four distinguished recruits from University College, and Routh was their last survivor—the others being Frederick Mott, Stanley Boyd, and Montague Murphy—and at the hospital rules were abrogated at once in Routh's favour, whereby abdominal operations, unless upon a pregnant patient, were performed by a surgeon of the hospital and not by the obstetric physician. Routh made admirable use of the opportunities thus afforded, for he became known as a skilful surgeon along the many lines thus opened up. The professional confidence reposed in him was shown by his selection by

English Royal Colleges to represent them at the Fifth International Congress of Obstetrics and Gynæcology held in St. Petersburg in September, 1910. His report dealt with Cæsarean section in Great Britain and Ireland, and included tables of 1282 cases of the operation as performed by over 100 living operators. At this date extra-peritoneal Cæsarean section was of recent introduction, and the subject was much discussed both on its merits as an operation and in reference to the conditions of its performance, there being no common agreement as to how far an answer had been supplied to the difficult question—what is the correct treatment to adopt in the case of women with contracted pelves, who are in labour, and who are possibly or probably already infected? Routh's report formed the subject of a debate which he himself opened at a meeting of the Section of the Royal Society of Medicine, and although there was no general endorsement of his views, he was allowed to have helped greatly in indicating the difficulties. The discussion proved that in clean and suitable cases, at dates fixed beforehand, without previous attempts at delivery, the mortality of Cæsarean section could be reduced to something like 1 per cent.

With another side of his science Routh's name will always be intimately connected—namely, antenatal pathology. An early supporter of the Council of the National Association for the Prevention of Infantile Mortality, he made a special study of the antenatal conditions and of the directions in which medical supervision might obviate disasters. He put forward his views before the Royal Society of Medicine in 1914, when he opened a debate on the subject, urging the need of research. Allowing for the essential differences in the physiological and pathological activity of the embryo and the fœtus, he pointed out that in either case disease might lead to abortion or premature labour, and he dwelt in particular on antenatal syphilis and antenatal tuberculosis as subjects that required elucidation. He was, indeed, one of the first to point out clearly that, although pregnancy is a normal process, it is one that is conducted under physiological stress and in connexion with which disturbances of a pathological nature form proper material for the earliest possible investigation. The lessons which he inculcated are now acted upon, and the importance of a regular watch over pregnancy is no longer dismissed with a few words of advice from the teachers in the schools, but periodical examinations of the pregnant woman are recognised as being the supreme way in which signs of abnormality can be studied and dealt with at a remediable stage. Until this fact became common experience antenatal care was regarded lightly; to-day it is known that there is a direct relation between the experience of the midwife as regards antenatal work and the number of medical aid notices which are sent during labour—practical proof of the value of antenatal observation. Like many pioneers Routh was supposed to be over-enthusiastic as to the merits of such observation, but any one can read the collection of essays that were brought together recently in an extra number of THE LANCET (Modern Methods in Abnormal and Difficult Labour) without seeing how steadily the estimation of antenatal care has risen in the minds of all who are concerned practically with the problems of pregnancy and labour. Repeatedly the comment is made in these essays, when dealing with the various phenomena and complications of abnormal and difficult labour, that the risks and troubles would have been precluded by antenatal care, and every hospital through its obstetric departments now takes up this attitude. Routh was a pioneer in this important work.

Routh was, also, specially interested in the association of syphilis and marriage, as the cause of more individual and social national trouble than any other disease affecting family life. The last important paper published in our columns from his pen—a communication made previously to the Society for the Study of Venereal Disease—dealt with this subject at length, and showed how long it had been under his consideration. Five years previously he had drawn attention in our columns to the probability that during pregnancy the treatment of a congenitally syphilitic child if properly undertaken is attended with remarkable success, whereas treatment of the same children begun only after birth will be given at a time when the latent period is over and is apt to prove unsatisfactory. His later communication justified his premises.

To return to Amand Routh's official career, he joined the original Obstetrical Society of London immediately after graduation, was elected F.R.C.P. in 1900, and became in due course a member of the council of the Society, librarian, secretary, and vice-president; in 1911, after the incorporation of the old Society with the Royal Society of Medicine, he was made President of the Section of Obstetrics and Gynæcology. Here his introductory and retiring presidential addresses struck a modern note, for he pointed out the need for advance in biological research as regards chemical, physiological, and pathological problems involved in the processes of menstruation, labour, lactation, and also the toxæmias of pregnancy. When President of the Harveian Society, as in the proceedings before the Royal Society of Medicine, he made valuable observations upon antenatal syphilis and the results of latent syphilis during pregnancy, offering suggestions which have since been confirmed in many directions. He was much in request as an examiner, discharging these functions at the English Conjoint Board, and also at the Universities of London, Birmingham, and Cambridge. In the University of London he was a member of the Standing Committee of Convocation for some 20 years—that is, until his retirement in 1923, and for a long portion of this period he sat on the Board of Advanced Medical Studies.

Routh was a prominent member of the Church of England, and was churchwarden at St. Paul's, Portman-square, for nearly 20 years; no doubt his religious feelings played a part in his attitude towards artificial birth control, save under medical advice, and many of similar views to his own found his arguments for the spacing of the arrival of children by self-control and abstinence to be a satisfactory substitute for mechanical methods of contraception. He was also a prominent Freemason, and after retirement to Folkestone became prominently associated with the civil activities of the borough. In his youth he had been a successful athlete, and until late middle life was an enthusiastic golfer.

This, it will be seen, is a record of a long life spent not only in intensive investigations along special lines but in bringing the resulting work into relation with all medicine and all society.

RINGER SOCIETY: THE ANNUAL DINNER.—The first annual dinner of this society was held on Dec. 10th at Jules Restaurant. The President, Dr. Henry Ellis, took the chair, and in the presence of a large company of guests delivered the Ringer oration. He explained that the society was named after Sydney Ringer, one of the first clinicians to realise the value of physiology and biochemistry applied to practical medicine, and perhaps best remembered by his perfusion experiments with the fluid which bore his name. The council of the society, said the President, had been actively engaged in formulating standards of urinary analysis, and these were almost complete. In the coming year the society would proceed to define standards for blood in the same way. Prof. Hugh MacLean, in response to the toast of Clinical Biochemistry, said he was much interested in the evidence presented of the activities of the new society. The health of the guests was proposed by Dr. Halls Dally, and Prof. Joseph Barcroft responded. Prof. F. G. Hobday, in thanking the society for its hospitality, said that he was confident that the coöperation of veterinarians would be very useful. Animals could be most advantageously used in the study of the effects of diet on metabolism. Dr. Langdon Brown and Dr. C. M. Wilson also replied and expressed optimism about the future of biochemistry applied clinically in the way advocated by the society. The health of the President was proposed by Dr. David Barcroft.

Medical News.

UNIVERSITY OF OXFORD.—At a congregation held on Dec. 17th the following degrees were conferred :—

D.M.—Sibyl Eastwood.

B.M.—H. A. Byworth, L. W. H. Bertie, H. P. Gilding, A. W. Cubitt, A. P. Kingsley, and R. E. Havard.

The Francis Gotch Memorial Prize in Physiology has been awarded to Mr. John Carew Eccles, M.B., who has also been elected to a Junior Research Fellowship at Exeter College. Dr. Eccles, who is a Rhodes Scholar from the University of Melbourne, obtained a first class in the Honour School of Physiology and was elected Christopher Welch Scholar in Biology this year.

UNIVERSITY OF CAMBRIDGE.—At a congregation held on Dec. 10th the following degrees were conferred :—

M.B. and B.Chir.—I. A. Jackson, B. W. S. Mackenzie, and W. E. Chiesman.

UNIVERSITY OF LONDON.—At a meeting of the Senate held on Dec. 14th the title of emeritus professor of pathology was conferred on Sir Frederick Andrewes, F.R.S., who, in July, 1927, retired from the University professorship of pathology tenable at St. Bartholomew's Hospital Medical College. The degree of D.Sc. has been conferred on Mr. F. C. Minett for a thesis on the Standardisation of Immune Serum and the Nature of Immunity in Foot-and-Mouth Disease, and other papers. Lord Dawson was appointed as the University's representative at the tercentenary celebrations in honour of William Harvey, patron of the Royal College of Physicians, to be held in May, 1928.

At examinations held recently the following candidates were successful :—

THIRD (M.B., B.S.) EXAMINATION FOR MEDICAL DEGREES.

Honours.—Russell C. Brock (*a*, *d*), Nils L. B. V. Eckhoff (*d*), and Arthur B. Hyman (*b*), Guy's Hosp. ; Robin S. Pilcher (*a*, *d*, *e*, University Medal), Univ. Coll. Hosp. ; Kenneth H. Watkins (*a*, *d*), Univ. of Manchester.

(*a*) Distinguished in Medicine. (*b*) Distinguished in Pathology. (*d*) Distinguished in Surgery. (*e*) Distinguished in Midwifery.

Pass.—Chandumal A. Amesur, St. Thomas's Hosp. ; Vernon F. Anderson, Westminster Hosp. ; William A. Ball, King's Coll. Hosp. ; Benjamin Barling, Univ. Coll. Hosp. ; Philip Berry and Lascelles R. B. Birt, Guy's Hosp. ; James W. Bottoms, London Hosp. ; Roger V. Bowles, Univ. Coll. Hosp. ; Frank W. Bradley, Guy's Hosp. ; Doris E. Bunbury, London Sch. of Med. for Women ; Maurice R. Burke, St. George's Hosp. ; Isabella M. G. Butler, Univ. Coll. Hosp. ; John C. D. Carothers, St. Thomas's Hosp. ; Phyllys P. Case, Charing Cross Hosp. ; John A. Cholmeley, St. Bart.'s Hosp. ; Maneckjee M. Cowasjee, Guy's Hosp., Frank H. N. Cruchley, London Hosp. ; Rupert P. P. Davies, St. George's Hosp. ; Douglas A. Dewhirst, St. Bart.'s Hosp. ; Hugh A. Dunlop, Westminster Hosp. ; Phyllis M. Edgar, Univ. Coll. Hosp. ; Donald C. McC. Ettles, Guy's Hosp. ; Libero Fatti, Univ. Coll. Hosp. ; Roy R. Fells and James R. Forrest, St. Bart.'s Hosp. ; Isabella Forshall, London Sch. of Med. for Women ; Krishnalal T. Gajjar, Univ. Coll. Hosp. ; Helena M. Gambrell, London Sch. of Med. for Women ; Dorothy Godden, London Sch. of Med. for Women and St. Mary's Hosp. ; Abraham Golombek, King's Coll. Hosp. ; Helen R. Goodman, London Sch. of Med. for Women ; Sydney W. Hardwick and Gwilym E. Harries, St. Bart.'s Hosp. ; Catherine M. Hext, London Hosp. ; Sydney L. Hicks ; Univ. Coll. Hosp. ; John W. O. Holmes, St. Bart.'s Hosp. ; Isabel E. S. James and Arthur W. Kendall, King's Coll. Hosp. ; Ambrose J. King, London Hosp. ; Eileen M. King, Univ. Coll. Hosp. ; John G. Kingsbury, Guy's Hosp. ; Caroline M. Kingsmill, London Sch. of Med. for Women and St. Mary's Hosp. ; Frank E. Kingston, London Hosp. ; Kenneth H. Lachlan, Westminster Hosp. ; Richard A. V. Lewys-Lloyd, St. Bart.'s Hosp. ; Isabella L. H. Livingstone, King's Coll. Hosp. ; Lewis J. McGregor, St. Thomas's Hosp. ; Robert M. Maher, Univ. of Liverpool ; Hugh L. Marriott, Middlesex Hosp. ; Swithin P. Meadows, Univ. of Liverpool ; Roy L. Midgley, Univ. Coll. Hosp. ; William S. Morgan, St. Bart.'s Hosp. ; Leonard Moss and Mark A. Nicholson, London Hosp. ; William D. Nicol, St. Bart.'s Hosp. ; Ethel E. M. Ogilvie, London Sch. of Med. for Women ; Nathoobhai D. Patel, Univ. Coll. Hosp. ; Reginald T. Payne, St. Bart.'s Hosp. ; Kudatelagé R. T. Peiris, King's Coll. Hosp. ; Ethel E. A. Pepper, London Sch. of Med. for Women ; Gangadhar M. Phadke, Univ. Coll. Hosp. ; Leonard G. J. Pitt-Payne, Guy's Hosp. ; Max M. Posel and Evan R. Rees, St. Bart.'s Hosp. ; Elsie E. A. Ridley, London Sch. of Med. for Women ; Muriel Rippin, Univ. Coll. Hosp. ; Edward H. Roche, Guy's Hosp. ; James E. C. Rouse, St. George's Hosp. ; Brian F. Russell, London Hosp. ; Margaret V. Saul, King's Coll. Hosp. ; William D. Sheldrake, Guy's Hosp. ; Eric W. Skipper, London Hosp. ; Hilda W. Slack, London Sch. of Med. for Women ; William R. C. Spicer, Guy's Hosp. ; Olive F. Sydenham, Univ. of Birmingham ; Victoria W. Symonds and Dorothy Taylor, St. Mary's Hosp. ; Kathleen A. Vernon, London Sch. of Med. for Women ; Richard F. Ward, London Hosp. ; John G. Weston, Guy's Hosp. ; Dorothy M. Wilkins, London Sch. of Med. for Women ; Michael C. Wilkinson, St. Thomas's Hosp. ; John E. B. Williams, Univ. Coll. Hosp. ; Elsie B. Wright, London Sch. of Med. for Women ; and Harry D. Wyse, Guy's Hosp.

UNIVERSITY OF MANCHESTER.—At recent examinations the following candidates were successful :—

Final M.B., Ch.B.—R. S. Abraham, S. K. Appleton, Soloman Bernstein, Agnes N. Buckley, Eric Cretney, E. B. Davies, D. E. Francis, Dorothy Guest, Amy H. Herbert, G. D. Hithersay, J. H. Jones, James Kemp, Kathleen McGowan, Jean McD. Marshall, H. E. Martin, J. R. Nuttall, Nora Ridehalgh, Lucy Stokoe, C. E. Sykes, and Joseph Vine.

Forensic Medicine.—E. H. Brooks and J. A. Longworth.

Hygiene and Preventive Medicine.—Doris Bernard, E. H. Brooks, Mary G. Davies, G. B. Hardman, E. P. Johnson, J. A. Longworth, and J. W. Murray.

Obstetrics and Surgery.—G. L. Brown, D. E. Francis, Alexandra W. Groves, I. M. Hughes, Morris Levine, Kathleen McGowan, J. S. Miller, E. J. B. Sewell, Henry Tickle, and J. F. Wilkinson.

Obstetrics.—Stanley Nowell.

UNIVERSITY OF EDINBURGH.—At a graduation ceremonial held on Dec. 16th the following degrees and diplomas were conferred :—

M.D.—E. W. Anderson, M. J. Bett, †George Brewster, ‡J. C. B. Craig, ‡Sidney E. Croskery, †D. M. Dunlop, H. J. C. Durward, J. F. Fraser, I. M. D. Grieve, H. H. Holden, G. J. Hughes, ‡D. J. A. Kerr, *J. G. Kininmonth, Helen M. Russell, H. T. Smith, †Donald Stewart, and †David Wilkie.

Ch.M.—‡A. L. M'Gregor.

M.B., Ch.B.—C. H. B. Adamson, H. J. van den Berg, A. G. Bonnyman, K. V. R. Choudari, Bessie L. Clark, A. J. Clements, Bernard Cohen, J. L. Cowan, T. A. Edwards, E. A. Fergusson, Jessie D. Forrester, James Fraser, L. M. E. R. Henshaw, W. H. Houghton, Samuel Jesudasen, W. H. E. Johnson, F. M. Khan, Joseph Kingsley, A. A. MacArthur, J. W. B. Macdonald, A. E. Mackintosh, Kenneth M'Neill, A. G. R. Macpherson, A. W. MacQuarrie, F. F. Main, Richard Mennie, W. M. Mitchell, W. D. Moore, J. S. R. Pandit, W. H. D. Patterson, P. J. G. Payne, Frances M. Porter, L. L. Ratazzi, A. S. Reilly, R. H. Robertson, J. M. Russell, B. S. Sandhu, Margaret A. Spencer, E. R. Thomson, E. W. T. Webber, and Elisabeth M. Williams.

D.P.H.—Margaret A. Mackenzie.

* Awarded gold medal for thesis.

† Highly commended for thesis. ‡ Commended for thesis.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.—The College will be closed from to-day (Friday) Dec. 23rd until Saturday, Dec. 31st, both days inclusive.

ST. JOHN'S HOSPITAL DERMATOLOGICAL SOCIETY.—The December meeting will not take place and the next meeting will be held on Wednesday, Jan. 25th. Sir John Bland-Sutton will deliver the Annual Oration on May 23rd, his subject being the Debt of Dermatology to Optical Glass.

ROYAL INSTITUTION OF GREAT BRITAIN.—Two lectures on the Physiological Aspects of Flying will be delivered by Group-Captain Martin Flack, Director of Medical Research in the Royal Air Force Medical Service, at 5.15 P.M. on Thursdays, March 22nd and 29th. On March 2nd Sir Farquhar Buzzard will give a Friday evening discourse on the Psychology of the Sick.

PORTRAIT OF THE LATE DR. ADAMI.—A portrait of the late Dr. J. G. Adami, Vice-Chancellor of the University of Liverpool, has been hung in the Assembly Hall of the medical building at McGill University, Montreal, where Dr. Adami was for many years professor of pathology. The portrait was subscribed for by Dr. Adami's many friends, pupils, and former assistants.

CHELSEA HOSPITAL FOR WOMEN.—This hospital of 97 beds is doing double its former work with no increase in the number of its voluntary supporters, and a special appeal is being made for the purchase of radium. A floor of 18 beds is reserved for patients able to pay five guineas a week and small fees to the staff for operations.

NEW RULES AT A BIRMINGHAM HOSPITAL.—The Birmingham and Midland Ear and Throat Hospital has made a rule that the honorary and assistant surgeons shall not hold an appointment at any other hospital, on the ground that duplicate appointments militate against the adequate performance of their duties. In consequence of the establishment of the hospital contributory scheme tickets for this hospital have been abolished.

BRITISH CHARITIES ASSOCIATION.—Lord Knutsford, who presided at the fourth annual meeting of the British Charities Association held at Kingsway House, W.C., on Dec. 15th, stated that the activities of the Association had resulted in a surplus for the year of £18,150, being an increase of over £4000 on the previous year's figure. Distributions to voluntary hospitals during the year amounted to £20,600 and since the close of the year the Council have made further grants of £15,000 to King Edward's Hospital Fund for London and £5000 to the League of Mercy. The total distributions since the formation of the Association four years ago now exceed £173,700. In announcing the Association's latest prize competition, consisting of a Bovril Slogan Ballot, with £6000 in prizes presented by Bovril

td., the chairman invited all voluntary hospitals to coöpe-
te by availing themselves of the offer of tickets, which the
ssociation issues, free of cost, to any voluntary hospital
r sale on behalf of its own funds.

Appointments.

YONS, LESLIE, L.D.S. R.C.S. Eng., has been appointed Clinical Assistant in the Dental Department of King's College Hospital, Denmark Hill, S.E.

ueen Charlotte's Maternity Hospital: PEIRCE, G. E. G., M.B., B.S., Senior Resident Medical Officer; ROSS, G. A., M.B., Ch.B., Assistant Resident Medical Officer.

niversity of Manchester: HILL, E. F., M.B., Ch.B. Manch., Lecturer in Anæsthetics; WRIGLEY, F. G., M.D. Manch., Lecturer in Diseases of the Throat and Nose; COOPER, E. R. A., M.D. Manch., Lecturer in Histology; HOWE, F., M.B., Ch.B. Manch., Demonstrator in Anatomy.

Vacancies.

For further information refer to the advertisement columns.

erdeen Royal Hospital for Sick Children.—Lady Supt.

erdeen Royal Infirmary.—Hon. Jun. Asst. Ophth. S.

gyle and Bute District Memorial Hospital, Lochgilphead.—Asst. M.O. £300.

rmondsey, Borough of.—Asst. M.O. for Maternity and Child Welfare. £600.

rmingham Pensions Hospitals Committee.—Jun. Surg. O. £300.

ckburn and East Lancashire Royal Infirmary.—3rd H.S. £150.

entry and Warwickshire Hospital.—Res. H.S. £125.

rby, Derbyshire Royal Infirmary.—Hon. Gynæcologist.

rham, Seaham Hall Sanatorium.—Med. Supt. £600.

ldford Union.—Res. Asst. M.O. £150.

ckney Hospital, High Street, Homerton, E.—Jun. Asst. M.O. £350.

ndon Union, Redhill Hospital, Edgware.—Res. Deputy Med. Supt. £300.

spital for Tropical Diseases, Endsleigh-gardens, W.C.—Hon. Asst. P.

ll Royal Infirmary.—Second H.S. At rate of £150.

coln, The Lawn.—Med. Supt. £700.

don School of Hygiene and Tropical Medicine, University Chair of Public Health.—£1300.

nchester Royal Infirmary, Central Branch, Roby-street.—Jun. H.S. £100.

tingham City Board of Guardians.—Dist. M.O.

thampton, Creaton Sanatorium.—Med. Supt. £550.

tingham General Hospital.—H.S. At rate of £150.

tsmouth, St. Mary's Infirmary, &c.—Third Asst. Res. M.O. £250.

nce of Wales's General Hospital, Tottenham, N.—Hon. Anæsthetist.

al Army Medical Corps.—Limited number of Commissions.

Paul's Hospital for Diseases of the Genito-Urinary Organs and Skin, Endell-street, W.C.—Res. M.O. At rate of £200.

field, Jessop Hospital for Women.—Two Asst. H.S.'s. At rate of £100.

efield, West Riding Mental Hospital.—Jun. Asst. M.O. £400.

esden General Hospital, Harlesden-road, N.W.—H.S. At rate of £100.

irths, Marriages, and Deaths.

BIRTHS.

IBIE.—On Dec. 10th, at Beaufort House, Ealing, the wife of Dr. Frank Crosbie, of twin sons.

LY.—On Dec. 18th, at Vernon House, Lee-road, Blackheath, the wife of Dr. Guy Neely, of a daughter.

ERS.—On Nov. 22nd, at "Lavalance" Nursing Home, Bordeaux, the wife of Oswald H. Vevers, M.R.C.S., L.R.C.P. Lond., of Villa Beaugeard, Arcachon, of a son.

MARRIAGES.

WELL—HILL.—On Dec. 17th, at St. Columba's Church, London, Dr. Robert Stevenson Caldwell, of New Milton, to Stephanie Winifred Hill.

DEATHS.

HAM.—On Dec. 14th, at Wellesley House, Cirencester, William Raymond Cossham, M.D., aged 76 years.

D.—On Dec. 9th, at Falmouth, Cornwall, Albert Frederick Field, M.D., late St. Bartholomew's Hospital, aged 83.

SWELL.—On Dec. 14th, aged 71 years, Albert Gresswell, M.A., M.D. Oxf., St. Bart.'s, of Kelsey House, Louth, Lincs.

ME.—On Dec. 14th, at Finborough, Suffolk, William Wollaston Groome, M.D., aged 74.

H.—On Dec. 18th, at his residence, Grimston Court, Folkestone, Amand Jules McConnel Routh, M.D., F.R.C.P.

—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Comments, and Abstracts.

THE ROMANCE OF LONDON'S WATER-SUPPLY.

AT Islington, near the Agricultural Hall, stands a memorial to Sir Hugh Myddleton, who led pure water to London from the springs of Chadwell and Amwell, tributaries of the New River, over 300 years ago, just before Harvey discovered the circulation of the blood. Since then London's water-supply has continually expanded and improved, and every day 7 millions of citizens use on an average 37 gallons each of water which for chemical and bacterial purity is unsurpassed. One remarkable thing about the engineering marvels of the Water Board is their extreme unobtrusiveness. Both the proposer and the seconder of a vote of thanks to Sir Alexander Houston for an illuminating lecture on this subject, delivered at the Royal Society of Medicine's social evening on Dec. 14th, admitted that the bulk of what he had said had been absolutely new to them, and their ignorance must be representative of that of most of London's population. Probably few citizens could name the principal reservoirs in which their drinking-water is stored, nor enumerate the steps taken to purify it. Actually the list is so long that it would tax an ordinary memory, for there are no less than 49 storage reservoirs, with a total area of 2704 acres and a content of 19,657 millions of gallons, enough to supply London for 80 days. The Thames water is stored at Staines, Walton, Hampton, and Hammersmith, and makes up 60 per cent. of the total supply. The remainder comes from the New River, the Lea, and deep wells in the Kentish chalk.

Thames water is purified by storage, sand filtration, and chlorination, said Sir Alexander Houston, but storage alone is a most effective means of purification. Suspended matter is precipitated and organic matter is decomposed; good and bad water are mixed, to the benefit of the mixture, and undesirable bacteria lose their vitality, so that adequate storage is nearly equivalent to sterilisation. The length of time at the Chelsea reservoir is 15 days, and this reduces the colon bacillus content to one-hundredth. The chemical improvement that results from storage alone is equally striking; great reduction takes place in the turbidity and ammoniacal nitrogen content, and, in lesser degree, in the percentage of albuminoid nitrogen. A disadvantage of storage is, however, the encouragement it gives to the growth of algæ; these bodies sometimes multiply to such a formidable extent that they not only give an unpleasant taste to the water but interfere with the working of the filters. Sir Alexander Houston showed several microphotographs of these harmless but troublesome organisms, which are controlled by means of minute quantities of copper sulphate. The rate of filtration is very slow, about 2 gallons per square foot per hour, a movement equivalent to that of the point of the minute hand of a watch. The depth of water on the bed is about 4 feet, and the bed itself consists of 3 feet of fine sand, 12 inches of coarse sand, 9 inches of fine gravel, and 9 more of coarse gravel. Every two or three months the bed has to be cleaned; the water is run off and the sand collected into heaps and washed. Filtration reduces the colon bacillus content from 1000 colonies in 100 c.cm. to one each in 75 per cent. of the samples and none in the remainder.

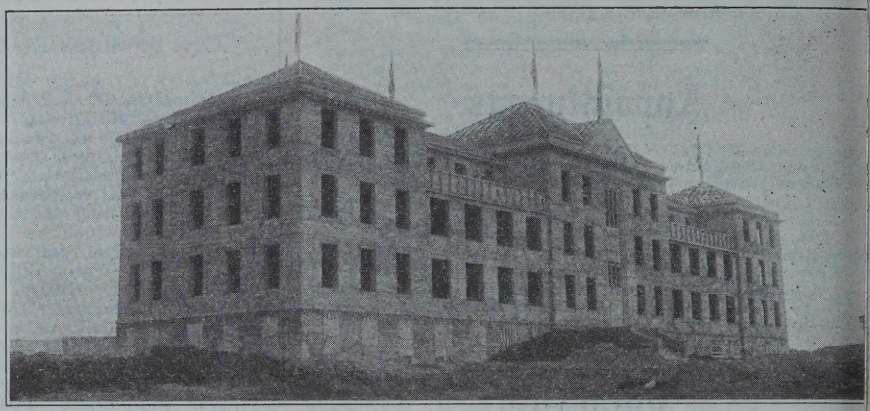
Chlorination was introduced in 1916 as a war economy, but was actually more effective in destroying bacteria than prolonged storage. Sir Alexander Houston, who was the first to use the method in this country, showed a picture of an improvised apparatus consisting of a number of earthenware jars fed by a man with a jug, and in contrast to this some of the latest models of chlorination were shown in operation in the library. The dose is very small; one-half of a part to a million for Thames water and one-quarter for Lea water. The Lea, as the lecturer reminded his audience, was the river so beloved of the great Isaak Walton. It rises near Dunstable and flows into the Thames near the East End of London, and the reservoirs at Chingford and Walthamstow hold 3000 and 2000 million gallons respectively.

Apart from the service they render Londoners in supplying unlimited fresh water, these great artificial lakes harbour innumerable rare wild fowl on the islands with which they are dotted, for no shooting is permitted over them. Sir Alexander Houston remarked that he had seen 24 heron in the air at once, startled by a gun fired on the neighbouring marshes, and ended his lecture with a splendid photograph of a great crested grebe on her nest, taken less than 5 miles from Henrietta-street.

Dr. Joseph Clarke McPherson, senior medical officer, has been appointed by the King an Official Member of the Executive Council of the Presidency of Montserrat.

A HOSPITAL IN ICELAND.

THE foundation-stone of a new national hospital at Reykjavik was laid in 1926 by the Queen of Iceland and Denmark, and the accompanying photograph, which was taken some months ago, shows the hospital with its roof completed. The flags were placed on the roof by the workmen in accordance with a national custom. As soon as the timbers are in place the proprietor of the building is expected to entertain the builders, and it is said that the flags would not be removed should he fail to do so. The hospital will be heated throughout by water from a natural hot spring.



The National Hospital, Iceland.

ABORTING VENEREAL DISEASE IN INDIA.

STATISTICS of immediate prophylactic treatment suggest that this method has value in the prevention of venereal disease, though results are far from uniform. The essentials to success appear to be conviction on the part of the responsible medical officer, detailed supervision, availability of treatment very soon after risk, and a suitable position for the ablution room. Information on these and other points is accumulating. Thus the 1924 Report on the Health of the Army noted the opening of a central ablution room at Quetta, where out of 4788 men treated in ten months only two had developed disease. Brevet-Colonel A. H. Safford and Major R. C. Paris give further details in the *Journal of the R.A.M.C.* for November. The room is adjacent to the main infecting area, in a recess just off the direct road back to barracks. Free use is made of it, the authors state, if it is open from 2 P.M. until men are due back to barracks, if it is kept scrupulously clean and bright by two specially selected orderlies, if no names are taken and only numbered tallies given, and if the specialist officer keeps the service always on the highest level. In three years among 16,000 men who used the room only one case of syphilis developed, seven of soft chancre, and 27 of gonorrhœa. Before this room was opened venereal incidence in Quetta was the same as in all India; now it is only one-half. In India the home prophylactic packets began to be issued in May, 1925; the rate for admission to hospital on account of venereal disease fell from 75 in 1924 to 72 in 1925, and to 62 in 1926. Experience of prophylactic measures in the American Expeditionary Force is recorded in a review on p. 1241 of our issue of Dec. 10th.

ARTIFICIAL DEFORMATION OF THE SKULL.

To the Editor of THE LANCET.

SIR,—My attention has been called to an article with the above title in THE LANCET of Nov. 5th (p. 1001) by Mr. Warren R. Dawson, in which the writer draws conclusions as to the origin of the practice of artificial deformation of the skull in Egypt from what he honestly believes to be evidence for such a custom, but which, unfortunately, as will be seen, is only evidence of the way in which facts may be distorted to suit the purposes of persons more interested in making a story than in truth.

The skull upon which Mr. Dawson bases his suggestion was found by Dr. L. Gatineau in a Coptic cemetery of about the fifth century A.D., at Medall, near Faehn, about 100 miles from Cairo. It was brought to Cairo and subsequently was stated to have come from Tell-el-Amarna, nearly 100 miles further south, from the ruins of the town of Akhenaten. Dr. Gorgy Sobhy, on the strength of this statement, and from the *seeming* resemblance of the skull in shape to the heads of Akhenaten, his daughters and other people represented on the monuments and in the statues of the period, examined and measured the skull but made no restoration of it. He, however, gave it as his belief that it belonged to a female member of the family of Akhenaten, and published his account in the *Bulletin de l'Institut Français*, t. xiv., with photographs both of the skull and of a wax model made by Dr. Gatineau, to represent what he imagined would be the appearance of a woman with a skull of this shape. If, however, the skull and model are examined, it will be seen that while the model resembles the stone heads from Tell-el-Amarna, it in no way agrees with the skull upon whose shape it is supposed to be based. The peculiarities of the deformed skull, due to the method of bandaging which h been employed to distort it, are its length, narrowness, a height, whereas the statues are remarkable for their wid and flatness, as are also the actual skulls of both Akhenat and Tut-ankh-Amen.

The skull is undoubtedly an example of artificial def mation by bandaging, and the fact that it was taken from Christian cemetery lends colour to my suggestion that t girl was a visitor to Egypt from the Caucasus, where t practice is, I am told, still in vogue.

In the year 1923, hearing that Dr. Gatineau was selli his effects, I bought the skull and wax model and took th to London. They were purchased for the Museum of t Royal College of Surgeons, where they may be seen.

In the meantime Dr. Gatineau had himself published short note of his excavations at Medall, and in this he gi photographs of some of the skulls found there which he ca "Crânes de martyrs Coptes chrétiens," and includes in Fig of his paper the photograph of the skull already descri and published in 1918 as coming from Tell-el-Amarn As I write I have in front of me the two papers, in each which the same photograph appears, the one in Gatineau's paper, labelled fifth century A.D., and its p venance given as Medall, the other paper, that of Dr. Sob describing the skull as that of a member of the family Akhenaten, whose town lies 100 miles south of Medall a whose date is some eighteen hundred years earlier! making this discovery I communicated with Dr. Sob who thereupon published a correction in the *Journal Egyptian Archæology*, vol. ix., p. 117. This correct Mr. Dawson has unfortunately not seen.[1]

In the whole of my experience in Egypt, where I have s and handled many thousands of crania of all dates, I h never come across another example of deformation bandaging, and it may be taken as certain that the cust did not have its origin in Egypt nor was practised in t country. Mr. Dawson's own quotation from Hippocra who describes the custom as performed in his day in A Minor, is surely evidence in itself that nothing was kn of it in Egypt or Hippocrates could scarcely have failed mention it. I am, Sir, yours faithfully,

DOUGLAS E. DERRY

Anatomy Department, Egyptian University, Cairo,
Nov. 25th, 1927.

TRADE DIARIES AND CALENDARS.

THE Anglo-French Drug Company (238A, Gray's Inn-rd London, W.C. 1) have sent us a copy of their block di for 1928 measuring 6 in. by 4½ in. and showing a page a day. It makes a convenient desk companion and inside of the front cover holds a concise list of the phar ceutical products of the firm.—From Messrs. Oppenhei Son and Company, Ltd. (179, Queen Victoria-street, Lond E.C. 4) we have received a copy of their new edition Ephemeris Pharmacologica, which is in the form of a poc diary and contains an almanac and a visiting-list with bl pages for memoranda and addressses. In addition to b therapeutic notes on drugs and other pharmaceut products useful information is given on poisons and a dotes, drugs and their doses, infectious diseases, heights weights, and so forth. Both these publications are obt able on application.

[1] But see Mr. Dawson's letter in THE LANCET of Nov. 2 p. 1166.—ED. L.

A Review
OF
MEDICAL EDUCATION IN CORK.

Part of a Valedictory Address delivered to past and present Students of University College, Cork, on retirement from the Chair of Surgery.

By C. YELVERTON PEARSON, M.D., M.Ch., F.R.C.S. Eng.,

HON. SURGEON TO H.M. THE KING IN IRELAND; EMERITUS PROFESSOR OF SURGERY IN THE COLLEGE.

PRESIDENT MERRIMAN, COLLEAGUES, AND FRIENDS.—Many of you are aware that the Statutes of the University have very wisely decreed that, apart from other considerations, the term during which any person holds the position of a professor should be determined by an age limitation. Were it not so there would be a natural tendency, on the part of some at least, to cling to office for a longer period than would be desirable in the interests of education. There have been instances in the past where students have had to attend a course of lectures and listen or not, as they pleased, to dissertations on medical subjects which might have been of interest to a previous generation, but were out of date.

I have delivered introductory addresses in this college on three occasions—one, on anatomy, when I entered on the duties of senior demonstrator immediately after graduation; one on taking the chair of materia medica and therapeutics; and one on surgery at the opening of the session following my appointment to that chair. It seems fitting that I should endeavour to review my associations with the past and present medical students of this College now that the time has arrived for me to lay aside the surgical mantle, so that it may be placed on younger shoulders. In doing so I cannot but have regret at ceasing to take an active part in the life of an institution in which I have been occupied as a teacher and other capacities for half a century; but, coupled with that regret, I feel a desire to give expression to feelings which possess me not only in respect of those who have been recently students of my classes, but also in respect of the many who have been within these walls during the period, and with whom my life work has been so largely associated.

In attempting to translate some of my thoughts to words it is difficult to know how to begin, but the following are amongst the many topics which present themselves. The history of the College itself under its various presidents and the numerous changes which have taken place in my time both in structural alterations and in other respects; the influence on the College of changes in the universities with which it has been connected; the history of medical education and the various alterations brought about in the medical curriculum since my student days; professors and colleagues I have known; students I have known. To deal with any one of these subjects in a fitting and adequate manner would occupy more time than could possibly be devoted to it in a short discourse such as I propose to give. My chief desire in the first instance is to pay a passing tribute to some of those much-esteemed teachers, colleagues, and former students who have pased away; to give expression to some of my feelings towards my former students both near and far, and to offer a few words of advice to those who are about to engage in medical studies or to enter upon professional work. In attempting to accomplish this it is impossible to avoid making some references to my own College life which has been closely interwoven with almost everything to which I wish to refer.

A PERSONAL RETROSPECT.

I matriculated in this College in October, 1873. My first year was spent in the arts faculty—where I attended courses under distinguished professors. I cannot say that I took full advantages of my opportunities. As it was my intention to study for medicine I idled a good deal and looked forward with eagerness to the following session, when I was to enter on my medical studies. In those days the first year's course for medical students consisted of French, experimental physics, chemistry, biology, and a combined course of anatomy and physiology. The professor of zoology and botany, Joseph Ray Green, was a learned, distinguished, and eccentric man of whom many amusing stories were current with students. To pass to chemistry, where the professor at that period was Maxwell Simpson, the department at that time was situated on the ground floor beneath the arts lecture-rooms, and, in consequence, fumigated those who occupied them with the odours of sulphuretted hydrogen, chlorine, and bromine, much to the annoyance of the professor of Greek, who was wont freely to denounce all chemists. I cannot find words to express the love and deep veneration which I entertained for that great teacher, Maxwell Simpson, under whom I studied for two years and whose analytical tables are still fresh in my memory. He endeared himself to every student who had the privilege of studying under him. He was particularly liberal in his support to the College clubs, especially to the athletic club, of which he was president and to which he presented a valuable cup. In those days the subjects of anatomy and physiology were combined under one professor and the course of lectures in the first year consisted of an account of the anatomy of the parts, such as the heart or digestive organs, before dealing with a description of their functions. The anatomical lectures were illustrated in a beautiful way by artistic dissections made by the professor himself, Joseph Henry Corbett. He was an eloquent and impressive lecturer, and I was especially fascinated by his treatment of his subjects and obtained a fair knowledge of visceral anatomy before I entered on dissections in my second year. Prof. Corbett was succeeded by an earnest and distinguished teacher, Prof. J. J. Charles, to whom the medical school of our College owed so much of its success during the years that he held the dual and onerous chair of anatomy and physiology, and to whom I personally was indebted for a large amount of my success in life. His name is perpetuated in our annals by the Charles medal which he instituted. Soon after I had passed my second medical examination at the request of several students I formed a class for what was known as "the half" or second medical examination. Amongst the members of that class was the late Dr. Horace Townsend, whose accident, prolonged incapacity, and premature death have been so deeply deplored by all who knew him intimately. Once I had started private teaching I became self-supporting, and during my third medical year I prepared a large number of students for the Queen's University and Edinburgh examinations. In my third year I was appointed junior demonstrator of anatomy, and after graduation I filled the post of senior demonstrator of anatomy, which I held for six years, when I was appointed to the chair of materia medica and therapeutics, vacated through the death of an esteemed teacher, Dr. Matthias O'Keefe.

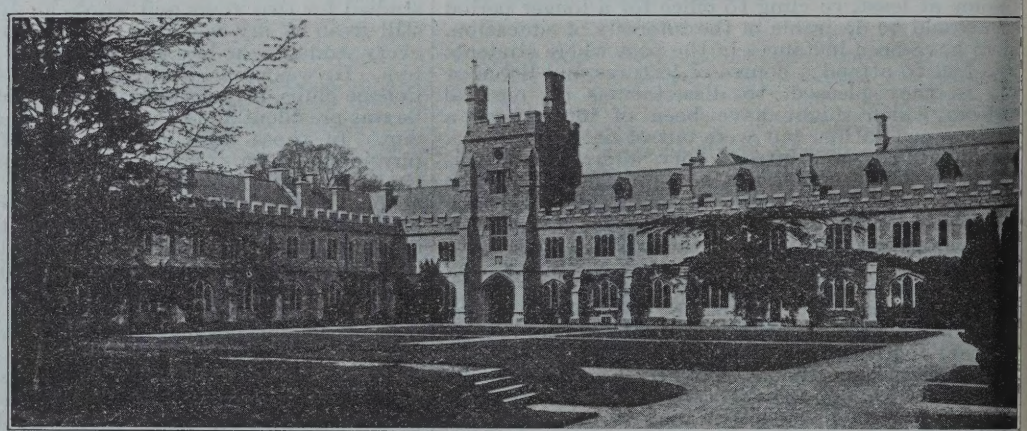
My association with students in the dissecting-room was naturally of an intimate nature, so that I got to know the voices as well as the faces of each member of the class; my memory is still fresh of the students of those early years, amongst whom were Dr. Jeremiah Cotter, a distinguished student and teacher, one of my colleagues on the staff of the North Infirmary up to the time of his untimely death, and Sir Richard Havelock Charles, the Sergeant-Surgeon to the King.

THE COLLEGE BUILDINGS.

In the year 1873, when I entered this College, its first president, Sir Robert Kane, very much an absentee, had resigned, and shortly after Dr. W. K.

Sullivan was appointed. The change from a non-resident to a resident president soon became apparent. At that time the College grounds did not extend much beyond the examination hall and included only a portion of the space now occupied by the gardens connected with the residences of the president and registrar. So that they were bounded, as at present, unfortunately, by the county gaol on the west and on the east by an extensive limestone quarry. The buildings consisted of what constitutes the quadrangle and about one-half of the present medical buildings. At that time the Board of Works was responsible for the maintenance of the buildings, for extensions, and all repairs, but it was not very easy to obtain grants for any new developments. However, owing to the representations and powerful influence of President Sullivan the medical buildings were extended to their present length, the dissecting-room was made double its former size, and the present anatomical and pathological museum was built.

Here I may direct attention to the fact that the eastern ends of the walls of this building were, at President Sullivan's suggestion, left in the rough and unfinished condition which exists at the present day as a monument to the uncompleted work of the British Government. The intention of President Sullivan was to have the building extended so as to complete the quadrangle and provide a spacious library. Such a library is more needed now even than it was then. Further, under the guidance of Dr. Sullivan, our boundaries were extended to their present extent; the limestone quarry was transformed into the beautiful grounds which extend to Fernhurst-avenue; a new entrance with handsome gates was established from the Western-road, but surmounted by a very inartistic building. The bridge which spanned the river from this entrance was a wooden structure provided by the Board of Works, so that obviously it was not intended it should be permanent, and showed signs of decay before many years had elapsed. It was replaced by a concrete one several years ago, but was so constructed that it could not withstand the varying conditions of the river Lee and was swept by a great flood.



View of the Quadrangle of University College, Cork, from the South.

The reason why the College has been left so long without a main entrance is in part the high cost of labour and materials since the Great War and in part the lack of funds. Let us hope that the day may not be far distant when we shall have a suitable entrance and bridge worthy of this beautiful institution. It was owing to the personal influence of President Sullivan that the College benefited so largely by the princely munificence of the late Mr. William Sharman Crawford, who at his own expense erected the plant-houses, built the observatory, and had it fitted with astronomical instruments. He also made a gift of many thousands of valuable books which form the Crawford Library, and he meant to extend his generosity still more extensively if he had not been deterred by the short-sighted policy of the then existing Government.

No important structural changes took place in the College under the reign of President Slattery or that of Sir Rowland Blennerhassett. It is scarcely necessary for me to point out the numerous changes and various additions that have been made during the presidency of Sir Bertram Windle and more recently under President Merriman to any of my present audience, but I wish that many of the older students had an opportunity of inspecting our fine physical and chemical departments, our biological and geological laboratories, and lecture-rooms; the beautiful Honan Chapel, the Honan Hostel, and the College playing-field. They would also find many changes in the physiological and pathological departments in this building necessitated by modern advances in these sciences.

This brings me back to the medical school, which in the past has been the mainstay of this College. The success of our medical graduates has been truly remarkable. On many occasions they have gained the highest places at entrance into naval and military services and more especially the I.M.S. Many have gained great distinction in the Colonial Service and in all phases of medical life. Amongst those teachers to whom the medical school owes so much of its success Dr. Henry MacNaughton Jones deserves more than a passing reference. He had been the chief demonstrator of anatomy under Prof. Corbett, but resigned that position when Prof. Charles was appointed. He was surgeon to the old eye, ear and throat hospital in Nile-street. His efforts there in giving voluntary teaching to any student who wished to attend were indefatigable. He held special evening clinics and taught us the uses of the ophthalmoscope, aurascope, and laryngoscope. He gave most valuable teaching both at the extern and intern departments of the South Infirmary. He was appointed to the chair of midwifery in succession to Dr. Joshua Harvey. If he had been successful later on in getting appointed to the chair of surgery he would probably have remained in Cork and my own career might have been very different.

My immediate predecessor in the surgical chair was Prof. Stephen O'Sullivan who, if not a brilliant lecturer, was a sound and earnest teacher. In more recent years the medical school has lost the invaluable services of my esteemed friend and colleague, Prof. Ashley Cummins. He was one of the most successful and painstaking of clinical teachers; he never spared himself and was a true friend and wise counsellor to all his students.

CHANGES IN MEDICAL EDUCATION.

Briefly reviewing the changes that have occurred in medical education during my time, I should indicate that some of these were due to changes from one university system to another; some of them have been necessitated by the changes due to alterations in the regulations enforced by the General Medical Council. In the days of the Queen's University it was possible for the average medical student to obtain his medical degrees in four years. Let not the student of

the present day imagine that this was an easy matter. The standard of the examinations was so high that about half the students of the Queen's Colleges obtained their diplomas at the Conjoint Examination of the Royal Colleges of Physicians and Surgeons of Edinburgh, and a much smaller number those of the Colleges of Physicians and Surgeons in Ireland. For the standard of knowledge in anatomy and physiology required by the Queen's University was very high. The entire examination for medical degrees had to be passed at one time and not in parts or sections, such as is now permitted. The final examination for the M.D. and M.Ch. included medicine, surgery, obstetrics and gynæcology, pathology, advanced physiology, the whole of human anatomy, and medical jurisprudence, including toxicology. When you consider that candidates had to pass in all these subjects at one examination I think you will have to acknowledge that the lot of the student in this respect is, at the present day, a comparatively easy one. The Queen's University was so constituted that the professors from the constituent colleges formed a board of studies and arranged the courses and examinations. As the examinations were conducted in Dublin by the professors of the three Queen's Colleges all students had an equal chance of obtaining honours and a uniform standard was maintained. Though this arrangement necessitated that all candidates should present themselves in Dublin for examination it had some advantages over the present system.

Owing to the education in the Queen's Colleges being strictly secular they had never received the approval of the Catholic hierarchy; consequently the number of students who entered the arts faculty was very small. Continuous agitation was carried on against the University. The clamouring for an endowed college in Dublin and for another university grew louder and louder, and the fate of the Queen's University was sealed. It was dissolved by Act of Parliament, passed in 1879, and the Royal University was established. This was a very strangely constituted university. It was really a huge examining machine. It granted degrees in almost all faculties outside medicine without requiring any university training. Candidates from schools and from private tuition could obtain the degrees of B.A. and M.A., of LL.B., and of LL.D. without necessarily attending a single collegiate lecture. The Senate consisted of very eminent and excellent men, but one-half of these were Catholics and the other half of other denominations. When a vacancy arose it had to be filled up in accordance with this strange though, I believe, unwritten law. The Catholic University, Stephen's Green, at the outset claimed that, as it received no direct Government endowment or grant, it was entitled to half the examinerships and other posts. After a few years what were called Examining Fellows were created, who received a larger salary than ordinary examiners and held office for a longer period. Thus it will be seen that half the examiners were Catholics and these were connected with University College, Stephen's Green, and it was understood that the other half were to be Protestants of some kind. As the appointments for these had to be divided between the Queen's Colleges, naturally Belfast got the lion's share, while Cork and Galway fared badly. No professor in this College who was a Catholic had a chance of being appointed as an examiner; I owed my own appointment as examiner in medical jurisprudence and hygiene, and later on as a surgical Fellow, to my being a Protestant, and not to any personal merit. Notwithstanding these defects, owing to the high standard of the examinations, the degrees of the Royal University, and especially its medical ones, acquired a very high reputation. As the degrees of M.B., M.Ch., and B.A.O. had all to be obtained at *one* final examination, and owing to the extensive knowledge required of anatomy and physiology, its graduates were more fitted for successfully competing at the examinations for admission to the medical services, and for immediately entering on practice, than the majority of those who graduate under present conditions. But the fact that the degrees of the R.U.I. in art, law, and science could be obtained without any University training naturally had an injurious effect on the Queen's Colleges. The number of students in these faculties became still fewer and both this and the Galway College were threatened with extinction. It was, however, recognised by all who had high ideals of university education that the system of granting degrees by examination alone was not calculated to promote it.

THE IRISH UNIVERSITY BILL.

A Royal Commission was appointed to inquire into the whole system of university education in Ireland and report thereon. The proceedings and reports of that Commission are contained in three or four full-sized Parliamentary Blue-books. In the evidence which I gave before the Commission I advocated the establishment of an endowed college in Dublin, and the reformation of the Royal into a teaching university, to which the four provincial colleges should be affiliated, but that there should be granted such a degree of autonomy as to enable them to have an individual and somewhat independent existence. I am satisfied that if this idea had been adopted it would have been better than what was actually done.

When Mr. Birrell came to Ireland, as Chief Secretary, he probably knew less about this country than most of his predecessors. As the settlement of the university question was then ripe for a solution he set about it, but in a very peculiar manner. It is true he visited Cork and inspected this College and acknowledged that it was worthy of being made an independent university. He did not trouble himself to visit the Belfast and Galway Colleges. When he returned to Dublin he entrenched himself in Dublin Castle, surrounded himself with Parliamentary Blue-books, and interviewed various persons, but was naturally chiefly influenced by the many who were most interested in the aspirations of Dublin. The outcome was the Irish University Bill of 1908, by which two new universities—the National University of Ireland and the Queen's University, Belfast—were established, and on Oct. 31st, 1909, the Royal University was dissolved. Cork had sought for an independent university for Munster, but its claims were set aside; Belfast did not want a separate university, but got one. Reading between the lines it is not difficult to see what occurred. Those who were specially interested in the future of a university college in Dublin feared that the influence on the Senate of Belfast, Cork, and Galway, if combined, might prove embarrassing, so conceived that the best solution of the difficulty was to get rid of Belfast, but letting it have a separate university. Mr. Birrell received a great deal of "kudos," which was largely undeserved, for having solved the Irish university question. His Bill was so vaguely drafted that even the late Chief Baron Pallas, who was a member of the original Senate, declined to interpret many of its clauses without obtaining counsel's opinion. It proved a veritable gold mine to lawyers.

The Royal University had an endowment of £40,000 per annum. This was split, half was given to Northern University, while the National University, which was meant for the rest of Ireland, had to do its best with the other half. Fairly liberal provision was made for the building and endowment of University College, Dublin, and certain provision was made for additional buildings and new professorships in the Cork and Galway colleges, but this was wholly inadequate for their needs and proved even less so as the cost of everything increased during the war. Moreover, a large part of what was given with the right hand was taken away with the left. The British Treasury was no longer responsible for much of the expenditure which it had previously to bear. The Board of Works was no longer required to maintain the buildings, so that the new governing body of this College had to bear all the expenses of structural alterations, and to pay a very large premium on fire insurance.

The more one inspects the provisions of the University Bill the more one realises the injustice that was done to the provincial colleges. The Senate of the N.U.I. is a mixed body, but of its 35 members 17, or practically one-half, are direct representatives of University College, Dublin, while Cork was allotted seven members and Galway five. Again, most of the nominated members are representative of Dublin. Of those elected by Convocation, owing to the preponderance of its graduates on the Register, it follows that Dublin graduates are usually chosen. It is quite evident that by this arrangement the Senate is dominated by University College, Dublin. I do not for a moment suggest that this power has been exercised unfairly; on the contrary, while I was a member of the Senate I found that the Dublin representatives were actuated by a spirit of fairness towards the sister colleges. If, however, any initiative is taken by Galway or Cork in some new direction it has no prospect of succeeding if it does not receive the approval of Dublin.

A UNIVERSITY FOR MUNSTER.

At the time Mr. Birrell was engaged in constructing his University Bill it so happened that I was touring in the United States, inspecting some of its great institutions and visiting its surgical clinics. While being shown over the University of Pennsylvania by one of its professors an amusing incident occurred which I think is worth relating. He suddenly asked me: "Of what university are you a graduate?" I replied: "My answer to that question is one that very few could give: I graduated in a university that no longer exists; I am a graduate of a university that will soon cease to exist, and I then expect to become a graduate of a university that is not yet in existence." Long before that time and ever since I hoped to see the day that I might be registered a graduate of the University of Munster. Whether I shall live for that wish to be fulfilled is in the hands of the Almighty. For I wish to impress upon you all that it is the duty of each one here, of the inhabitants of Cork, and Munster generally, to strive by every legitimate means to obtain an independent university for the South of Ireland so that it may possess that freedom which is so essential for its advancement and development along lines best suited for its prosperity.

When the N.U.I. was established at the very outset the status of its medical degrees was lowered as compared with those of the Royal University, by permitting these degrees to be obtained at separate examinations. This change was made to suit the requirements of University College, Dublin, which regarded itself as starting in rivalry with the medical schools of Trinity College and the Royal College of Surgeons. A further lowering took place by assigning a very subordinate place to physiology and anatomy. This latter defect has to some extent been remedied by the recent enactments of the General Medical Council. I regret to say that the regulations of that body have not given physics or chemistry the position they should hold in the education of the student. There is one other defect in the Cork Medical School which I should much like to see remedied. I consider that the clinical hospitals should be brought into intimate relation and, so far as teaching is concerned, be largely under control of the College. I have made some personal efforts in this direction in the past, but with little success. I was indirectly responsible to a great extent in the arrangement for a rover's ticket. This was only a small step in the right direction. What is also needed is some coöperation between the teaching staffs of the various hospitals, so that the clinical material might be utilised to the greatest advantage. It is a matter of deep regret that owing chiefly to the apathy of many of the younger members of the profession the old Cork Medical and Surgical Society has been allowed to perish. I trust that under altered conditions it may soon be re-established.

[Prof. Pearson concluded with an eloquent exposition of his views on the relations that should exist between teachers and students.]

A REPORT ON TWO CASES OF TRICHINELLIASIS.

BY T. L. HARDY, M.D. CAMB., M.R.C.P. LOND.,
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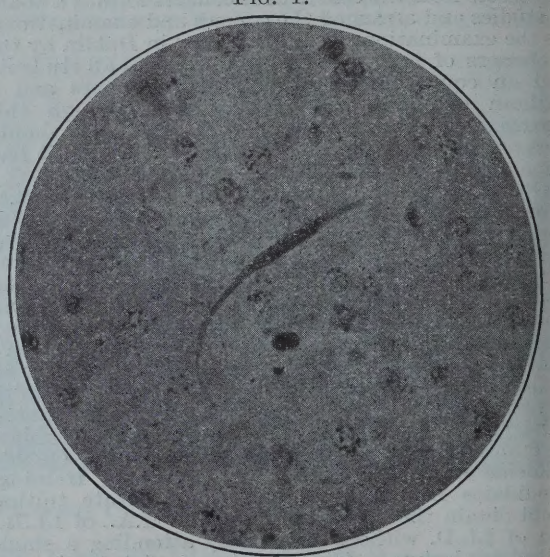
EARLY in the eighteenth century small Chinese hogs were introduced into Europe for crossing with the native strain in order to improve their fattening powers. Shortly after this there appeared the first cases of a disease which was shown by Zenker in 1860 to be due to an infection by a nematode worm, *Trichinella spiralis*, originally identified by James Paget and Richard Owen and hitherto regarded as a harmless parasite. Zenker was able to demonstrate adult trichinellæ in the intestines and non-encysted larvæ in the muscles during the autopsy on a girl of 19 who had died of a disease thought to be typhoid fever. Salted pork, of which she had previously eaten,

FIG. 1.



Larval embryo in blood film. (×400.)

was found to be heavily infested. Subsequently Leuckhart and Virchow, from material obtained from this case, carried out a series of classical transmission experiments in animals, and the suspicion then aroused that they were dealing with a dangerous disease was confirmed by a succession of outbreaks of trichinelliasis in Germany during the next 20 years, one at Hedersleben in 1865 having a mortality of nearly 30 per cent.

Some authorities attribute the introduction of the disease to the surmulot or Asian brown rat which swam the Volga in vast hordes and overran Europe in 1760. It seems certain, however, that cases of trichinelliasis had occurred, though unrecognised, prior to this date, and although the brown rat has undoubtedly played a part in the dissemination of the disease, the major responsibility must rest on the Chinese pig, which is very susceptible.

In Great Britain trichinelliasis is very rare and apart from an outbreak at Workington in 1871, has never attained serious epidemic proportions. Sporadic outbreaks, however, are occasionally met with, such as those recorded by Harris [1] in 1909, and Rice [2] in 1922. The following notes, descriptive of two cases occurring in the early part of this year, are put on record, since they were seen at an early stage of the illness, ran a mild but very typical course, and lent themselves to thorough investigation.

History of the Outbreak.

The prelude to the story took place on Jan. 16th 1927, when a working-class family of eight persons sat down to their Sunday dinner of roast pork. The

joint, a leg weighing about 9 lb., was roasted in a coal-fire oven for four hours and was apparently well cooked.

On Jan. 21st A. B., one of the party, a woman of 28, felt out of sorts and the normal regularity of her bowels was

FIG. 2.

Area of round-celled infiltration in gastrocnemius. ×200.)

disturbed by two or three loose stools. The following morning she awoke to find her face so swollen that she could not open her eyes. By the next day the swelling of the face had increased and the eyes were bloodshot. Headache was severe, and from time to time she vomited small quantities of bilious material. The evening temperature was 104° F. By the 24th the œdema was considerably less, but on this date severe pain in the calves, thighs, upper arms, and pectoral

FIG. 3.

oreign body giant cells surrounding a dead parasite. (×200.)

muscles was the outstanding feature. Nephritis had been considered as the probable diagnosis, but was negatived by examination of the urine.

On Jan. 26th, ten days after the fateful meal, B. C., the other of A. B., a woman of 48, was attacked in similar fashion, save that in her case the sequence of events—vomiting, œdema, and limb pains—became maximal within hours and she was noticed to have a squint.

On *examination* at this stage both patients presented an appearance of moderate toxæmia, the temperature being 2° in each case; the tongue was lightly furred and there was profuse sweating. The heart sounds were clear and the pulse-rate 120; the lungs were normal. The œdema had largely disappeared from the first patient, but the elder woman had a distinctly "renal" appearance, the swelling being confined to the face. Examination of her nervous system revealed no abnormality other than slight weakness of the left external rectus muscle; there was no diplopia.

FIG. 4.

Encysted parasite in gastrocnemius. (×200.)

The muscular pains had special characteristics and were similarly described by each patient. The slightest movement of the legs or arms produced momentary but excruciating pain, especially in the calves, thighs, upper arms, and pectorals, "as if the flesh was being torn from the bones." Tenderness to palpation was very slight and there was no induration of the muscles. Mastication and swallowing were painless and there was no dyspnœa.

FIG. 5.

Encysted parasite in gastrocnemius. (×400.)

A diagnosis of trichinelliasis seemed probable, and interrogation of the other members of the dinner party revealed the possibility of mild infections in two instances. An old lady of 77 had had pain in the neck and back and some swelling of the face lasting for about a week, whilst puffiness of the face, lasting over 24 hours, had been noticed in a man of 50, who, however, made no other complaint. The two patients were admitted to the Birmingham General Hospital, and confirmation of the diagnosis was obtained by the occurrence of a moderate eosinophilia and the finding

of embryos, both in the circulating blood and later on in various stages of encystment in the muscles.

Blood Examination.

In the early stages there was a moderate leucocytosis with an eosinophilia amounting to 25 per cent. in the one case and 22 per cent. in the other, the increase being obtained, as is usual, at the expense of the neutrophil polymorphs. The eosinophils fell very gradually, normal figures being reached in the one case between the 29th and 41st days of disease, and in the other between the 85th and 91st days (see table). Much higher counts have, of course, been recorded—for example in the paper by T. R. Brown,[3] who was the first to call attention to the value of the sign; an eosinophilia of 68 per cent. is recorded in one of his cases.

CASE 1 (A. B.).

Date in 1927.	Day.	Total.	Neutr.	Lymph.	Monos.	Eosin.	Baso.
Feb. 1	11	17,400	41·8	31·6	1·4	25·2	—
Feb. 7	17	—	44·4	29·8	1·2	24·6	—
Feb. 19	29	—	51·2	34·0	2·2	12·6	—
March 3	41	10,100	45·4	43·2	8·6	2·0	0·8
May 3	102	10,600	58·2	35·8	2·8	3·2	—
May 17	116	10,240	46·2	44·4	6·4	2·6	0·4
May 26	125	10,080	63·8	29·6	4·4	1·8	0·4

CASE 2 (B. C.).

Feb. 1	6	9,600	53·6	21·2	2·8	22·4	—
Feb. 7	12	—	53·6	23·4	1·0	22·0	—
Feb. 19	24	—	43·6	35·6	5·6	15·2	—
March 3	36	11,200	37·0	47·0	5·8	9·8	0·4
March 14	47	14,200	62·0	24·6	4·4	8·4	0·6
March 25	58	—	45·4	32·4	4·4	16·8	1·0
April 4	68	8,400	43·0	44·2	3·6	8·8	0·4
April 21	85	—	39·8	47·8	3·0	8·8	0·6
May 3	97	9,600	54·6	36·2	5·0	4·2	—
May 17	111	12,200	60·0	32·4	5·0	2·2	0·4
May 26	120	12,400	50·6	37·6	6·8	2·8	0·2

Amongst the many conditions characterised by a marked increase in eosinophils acute polymyositis is important, since it possesses certain features (fever, œdema, and muscle pain), in common with trichinelliasis. According to Piney,[4] in this rare condition the eosinophilia persists only for a day or two, thus constituting a valuable differentiating feature.

Blood smears were also taken from the remaining six persons who had eaten the pork, but with negative results.

In 1905 Staubli had settled the disputed point as to the path of migration of the embryos from the intestinal wall to the striated muscles by finding them in the blood stream of artificially infected guinea-pigs, but it remained for Herrick and Janeway [5] to demonstrate them in the circulation of man. They used Staubli's method, which consisted in laking the blood with ten parts of 3 per cent. acetic acid and examining the centrifuged deposit. The embryos are found in the circulating blood between the eighth and the twenty-fifth day after infection, though according to Gerlach the greatest concentration takes place between the twelfth and twentieth day. In my own cases, and using Staubli's method, embryos were found in the blood stream of the younger patient on the eleventh day (Fig. 1), but not after that date, nor at any time in the elder patient.

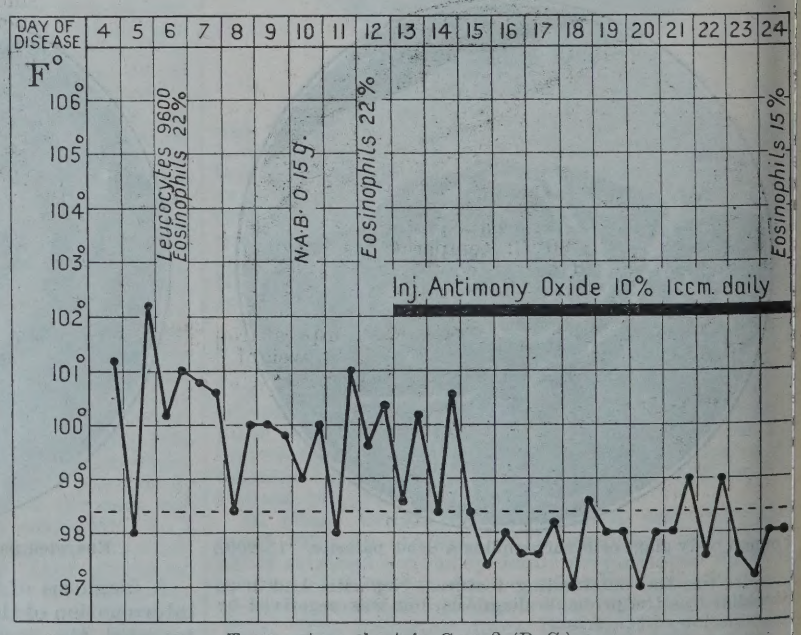
Embryos in the Muscles.

Trichinella larvæ reach the voluntary muscles about a week after infection, their progress being arrested here by the small size of the capillaries, which are further narrowed by muscular contraction.[6] After a preliminary period of migration in the intermuscular connective tissue they penetrate the muscle-fibres, attain their full growth, and enter upon the stage of encystment about one month after infection. Prior to this an interstitial myositis is set up and there is an infiltration of round cells, amongst which are numerous eosinophils surrounding the parasites. Microscopical examination of fragments of voluntary muscle constitutes the most reliable method of diagnosis, the masseters, triceps, and gastrocnemii being the most likely sites. In the cases now described fragments of the outer head of the gastrocnemius, as near the tendinous insertion as possible, were removed under local anæsthesia in the second and seventeenth weeks respectively. Portions of the fresh muscle were teased out in normal saline and examined at once with a hand lens, but with negative results. Fairly thick paraffin sections were cut and stained with hæmatoxylin and eosin. The results are seen in Figs. 2, 3, 4, and 5. Fig. 2 shows the appearance during the second week. Parasites are not seen, but a well-marked infiltration of the muscle-fibres with round cells is present. Figs. 3, 4, and 5 show the embryos in various stages of encystment in the fifth month. Some round cell infiltration is still present, and in Fig. 3 one or two foreign body giant cells are seen; the cyst wall is in process of formation and some detail of the structure of the embryo as it lies curled up within is apparent. The final stage is reached with the deposit of lime salts in the cyst walls—a process which sets in somewhere about six months after infection. Numerous radiograms of the muscles in both patients were taken during the eighth month, but evidence of calcification was not forthcoming.

Clinical Course, Progress, and Treatment.

The progress of both patients was uneventful and similar. The œdema disappeared about the 6th day, and there was complete freedom from pain on movement by the 12th and 13th days respectively. A legacy has developed more recently, however, in the form of gnawing pains, uninfluenced by movement, in the calf and pectoral muscles. Otherwise the general condition of both patients is excellent. The temperature and pulse-rate reached normal on the 15th day in each case (Fig. 6).

FIG. 6.



Temperature chart in Case 2 (B. C.).

No treatment so far introduced has been shown to ave any specific effect in cutting short the infection r destroying the parasites, and reliance has to be laced on the patients' own powers of resistance. arious vermifuges, serum from convalescent patients, rsenic in organic form, and more recently antimony, ave been tried, but without convincing results. In y own cases, after preliminary doses of santonin and vo of N.A.B., antimony in the form of Martindale's ntimony oxide (a 10 per cent. solution in glycerine) as given daily in 1 c.cm. doses intramuscularly over period of a fortnight, beginning on the 13th and 20th ays of disease respectively (Fig. 6). No definite ffect could be attributed to the drug, though ncouraging results have been recorded,[7] and it eems to be worth an extended trial. To be of alue, however, it must be given early in the igratory phase, a condition which presupposes early agnosis, which is rarely possible.

Public Health Aspects.

An account of the public health aspects of these ses has already appeared elsewhere from the medical fficer of health for Smethwick, where the outbreak curred, and the following details are abstracted ainly from his article.[8]

The pork was purchased from a local butcher who ceived it from Birmingham. The Birmingham holesaler bought the pig among 15 others from a large rm which sells about 40 pigs weekly, and is one of e best managed and equipped in the district. The rm was visited by the chief veterinary inspector of rmingham, but no light could be thrown on the use of the outbreak. The farmer does not import y meat from the continent and his pigs are fed on ain, no meat offal being given to them. Four rats hich were obtained from the farm were examined trichinelliasis with negative results.

The cases were notified on the 14th day after ection and all practitioners in the locality were mediately circularised. No further cases have curred, and in the subsequent microscopical examiation of over a thousand carcasses at the Birmingham ughter-houses no trichinellæ have been discovered. is unfortunate, too, that since all the affected pork this case was sold fresh and none pickled, it has en impossible to obtain any trichinous meat. The gin of the outbreak thus remains a mystery.

The prevention of trichinelliasis by meat inspection t best a partial method and is relied upon only in se countries where pork is eaten raw. Elsewhere ance is placed on the destruction of parasites by quate cooking, but this method, too, may prove rustworthy owing to the tolerance of trichinellæ eat. Various observers[9] have placed this tolerance 60°, 70°, and even 80° C., temperatures which are ely if ever reached at the centres of large joints ked according to customary ideas. For example, s Woodhead[10] showed that boiling and roasting rdinarily performed rarely produced a temperature 0° C. at the centre of joints over 6 lb. in weight, similar results were obtained by Robertson[11] in eriments carried out during the war to determine rapidity with which the centre of a piece of meat ld be heated by boiling.

ur comparative immunity from the disease would s seem to depend more on the freedom of our ve pigs from trichinelliasis than upon our methods ooking.

Summary.

wo sporadic cases of trichinelliasis have been ribed, of a type sufficiently definite to admit of ly clinical recognition, but not severe enough to confounded with such conditions as enteric. gnosis was confirmed by finding the embryos in blood stream and in the muscles. The source of outbreak could not be traced, but its occurrence is e attributed to the failure of the ordinary methods ooking when dealing with large joints.

y best thanks are due to Dr. Stanley Barnes for pportunity of continuing the investigation of these s after admission to his wards; to Prof. Haswell Wilson for the microphotographs; and to Sir John Robertson, the late medical officer of health for Birmingham, for his interest and help throughout.

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ATRIO-VENTRICULAR RHYTHMS.

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THE impulses initiating the contractions of the heart arise normally in a collection of specialised neuromuscular tissue at the entrance of the superior vena cava into the auricle. This "sino-auricular node" generates rhythmic impulses at an average rate of 72 per minute. Under certain conditions, however, its work may be undertaken by similar neuromuscular tissue scattered throughout the genetic system of the heart, but mainly found in the auriculo-ventricular node and bundle. The rhythms arising from these junctional tissues are therefore commonly called atrio-ventricular rhythms. Two main groups of such rhythms may arise. First, paroxysms of tachycardia of A.V. (atrio-ventricular) nodal origin and single premature beats from the same source called nodal extrasystoles. Secondly, a slow rhythm of the heart due to the gradual transference of the pacemaker from the S.A. (sino-auricular) node to the A.V. node. The latter is properly called atrio-ventricular rhythm, though the term "nodal rhythm" is frequently applied to it. Closely allied to A.V. rhythm is the condition of "ventricular escape,"[1] in which, during the course of an S.A. rhythm, occasional beats of the ventricle arise from impulses formed in the junctional tissues. Ventricular escape thus bears much the same relationship to A.V. rhythm as do extrasystoles to paroxysmal tachycardia, A.V. rhythms representing a more permanent condition of ventricular escape, and paroxysmal tachycardia representing a continuous series of extrasystoles.

The two groups of ectopic rhythms referred to here were classified by Lewis[2] as heterogenetic and homogenetic respectively, and differ in several important characteristics. The heterogenetic rhythms—e.g., paroxysmal tachycardia—are rapid in rate, abrupt in onset and cessation, and uninfluenced by factors such as exercise or change of posture. The homogenetic rhythms (A.V. rhythm) are slow in rate and gradual in onset and cessation, and are considerably influenced by exercise, vagal stimulation, &c. This paper is concerned with the latter group; the inclusion of ventricular escape under the heading of atrio-ventricular rhythm seems justified by their close relationship.

Causes of A.V. Rhythm.

It is sometimes stated that the heterogenetic rhythms are pathological in origin, whilst the homogenetic are physiological. Whereas the former statement is probably true, the latter is only partially correct, for, although A.V. rhythm may arise in an apparently normal heart without any obvious cause, it is not uncommonly a feature of some cardiac disability due to disease. Experimentally the rhythm has been produced by Lewis,[3] Meek, and Eyster,[4] and others, on the one hand, by methods which depress the S.A. node, such as cooling with iced water or

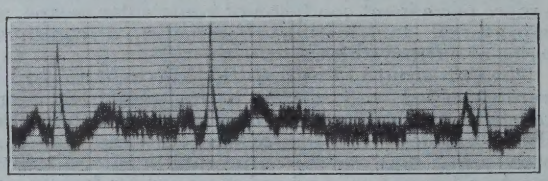
making incisions round the node, and, on the other hand, by enhancing the function of the A.V. node by warming or electrical stimulation. All these methods act by increasing the rate of impulse formation in the A.V. node relative to their formation in the S.A. node. The rhythm has also been produced by simultaneous stimulation of the right vagus and left sympathetic. Wilson[5] has shown that it can be produced in a considerable percentage of normal individuals after subcutaneous administration of atropine, and that it lasts 15–20 minutes before reverting to a sinus rhythm. This writer[6] has also shown that deep respiration may initiate an A.V. rhythm. Amongst drugs which are likely to cause it digitalis holds an important place, though the condition has also occurred under ether anæsthesia. The pathological states in which A.V. rhythm has been noted are mainly infections such as diphtheria, scarlet fever, typhoid, infective endocarditis, and rheumatic fever. The experimental methods of induction help to explain its occurrence in these infections, for the latter so damage the sino-auricular node that its function is temporarily in abeyance, and the A.V. node then governs the rhythm of the heart. It seems less probable that the toxins of the disease may stimulate the A.V. node and increase its period. In either case, when the rhythmicity of the A.V. node exceeds that of the S.A. node in rate, atrio-ventricular rhythm results.

Clinical Features of A.V. Rhythm.

The number of recorded cases of A.V. rhythm and ventricular escape does not justify any sweeping conclusions on the symptomatology of these conditions. It would appear that A.V. rhythm may occur without any symptoms at all, as in the case recorded here, and may be discovered incidentally in the examination for some other condition.

Gallavardin and Gravier[7] and others have noticed in cases of persistent A.V. rhythm a tendency to

FIG. 1.

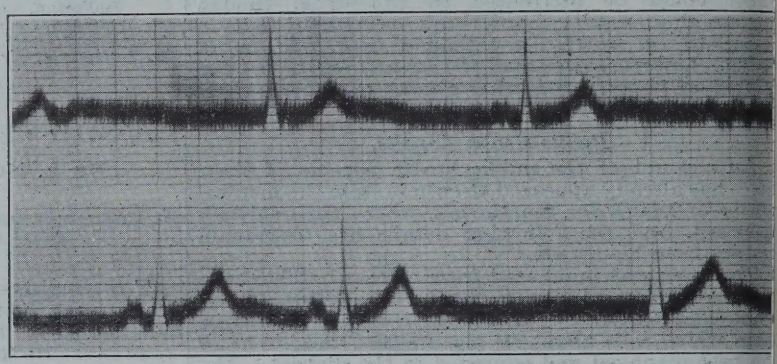


(Lead II.) Shows an isolated cardiac cycle with P.R. interval less than normal—i.e., A.V. rhythm, Type I. The time is marked in 1/5th secs. in all the figures.

vertiginous attacks suggestive of those occurring in heart-block. These may possibly be accounted for by ventricular standstill, which might occur from any excessive action of the vagus. Wilson observed palpitations in two of his cases of A.V. rhythm produced by atropine, and found that they were associated with simultaneous contraction of the auricles and ventricles.

The *physical signs* of A.V. rhythm are variable, but in most cases bradycardia is one important feature. The rate varies from 45–55. Sometimes the pulse is perfectly regular, though more often it shows periods of irregularity which resemble the intermissions of partial heart-block. Examination of the heart generally reveals nothing of importance unless some other coincident lesion is present. Whilst these signs may suggest the possibility of A.V. rhythm, th diagnosis cannot be established without graphi methods of investigation. Most cases of A.V. rhythr are temporary, and if induced by drugs such a atropine or digitalis revert to the normal S.A. rhythr as the effect of the drug passes off. The cases occurrin spontaneously or after infections seem liable to recu from time to time. The literature of A.V. rhythr records a few examples lasting over a long perio but a true permanent A.V. rhythm is very rare.

FIG. 1 (A).



Shows ventricular escape. Note absence of P wave in first cycle, lead I., and ir third cycle, lead II.

The following case illustrates certain of the poin mentioned in this paper, and the electrocardiogran are taken from this patient.

Dock labourer aged 46. Admitted to Royal Southe Hospital Jan. 23rd, 1927, with dysarthria from right faci palsy of lower neuron type.

Past History.—No illnesses of note. No rheumatic infe tion. Denies venereal disease. Wassermann negativ Wife had no miscarriages. Alcohol and tobacco moderat

Present Condition (Jan. 26th, 1927).—No cardiac symptor except slight breathlessness. Apex beat in fifth intercost space, 4 inches to the left of middle line. Heart soun normal. No bruits. Rhythm irregular, but not grossly s Apparent intermissions of the pulse. Pulse-rate varied fro 40–70 per minute on different days, commonly about per minute. Electrocardiograms taken Jan. 26th and 29 show the characters of A.V. rhythm mixed with tho of S.A. rhythm—i.e., "ventricular escape" occurring frequent intervals. (Figs. 1 and 1 (A).)

Effect of Atropine.—Feb. 3rd, 1927. Patient given 1/30 g atropine sulp. hypodermically. Ventricular rate rose 124 at the end of half an hour, and after 40 minutes fell 69. During the administration of atropine the rhyth became quite regular, and the electrocardiogram shows continuous A.V. rhythm of Type II.

Effect of Digitalis.—Later the patient was kept on da doses of 1 drachm tinct. digitalis for 10 days. The effe was to reduce the rate of the ventricle and to produce continuous A.V. rhythm of Type III.

Later Observations.—The patient was re-examined fi months after the above observations were made. T pulse-rate was still slow (average 52 per minute). A. rhythm was still recognisable in the electrocardiogran The persistence of the condition suggests the possibility fibrotic changes round the S.A. node.

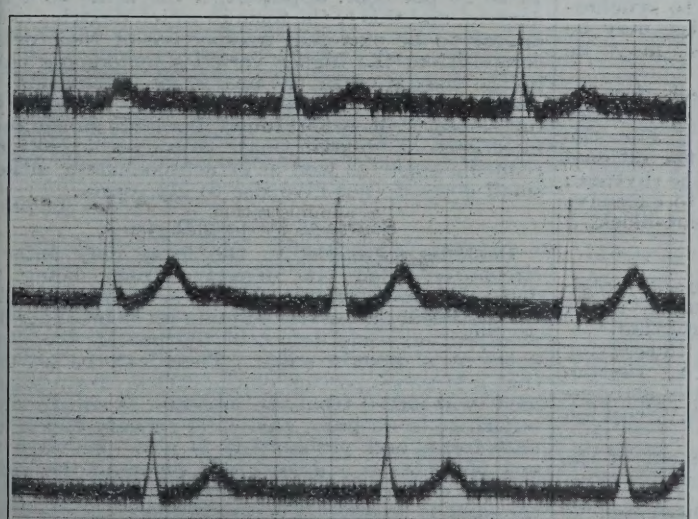
Electrocardiographic Considerations.

The diagnosis of A.V. rhythm is only to be ma with certainty by means of electrocardiograms, a these may offer some difficulty in interpretation, not uncommonly in the same record there may frequent changes from an S.A. to an A.V. rhyth and vice versa—a condition usually described ventricular escape. An example is seen in Fig. 1 (A At other times it is possible that the two pacemake may be simultaneously engaged in producing stimu those from the S.A. node governing the auricle whilst those from the A.V. node govern the ventricle Vaucher and Meyer,[8] recording a case of A.V. rhythm regard their electrocardiograms and those of oth authors as representing such a state of affairs, a

eny the possibility of an A.V. rhythm of a permanent rpe in which all chambers of the heart are governed om the A.V. node. To them the variations in the rm and position of the P wave are due to "interrence phenomena." This means that electrical aves arising from the A.V. node will tend to neutralise rtially or completely those arising in the S.A. node, ving to their spread in opposite directions. Whilst ch interference phenomena undoubtedly occur, it ems probable that in many cases of A.V. rhythm, hether permanent or temporary, the whole heart—th auricles and ventricles—is controlled by the V. node, the stimuli passing from it nultaneously to the auricles and ventricles, d it is only in the transition stages tween S.A. and A.V. rhythm that terference phenomena are met with. In ese cases, when the only pacemaker at rk is the A.V. node, Gallavardin and avier suppose that the variations in the rm and position of the P wave are pendent upon the portion of the auricle on which the impulses from the A.V. node pinge first. Thus a positive P wave dicates that the contraction of the ricles commences near the S.A. node, ilst a negative P suggests that the mulus reaches the part of the auricle ar the A.V. node first. It must be assumed this case, as Gallavardin and Gravier point t, that the stimuli from the A.V. node need t fall first upon the lower part of the auricle—i.e., nearest part to the A.V. node—but may reach upper part first, owing to the distribution of conting tissue in the auricle. The position of the P ve in these cases will depend upon the relative le of arrival in the auricles and ventricles of the mulus from the A.V. node. According to the sition of the P wave three types of A.V. rhythm y thus be distinguished.

Type I.—In which the P.R. interval is present, but rtened. The impulse in this case probably arises the upper portion of the A.V. node. The P wave

FIG. 2.

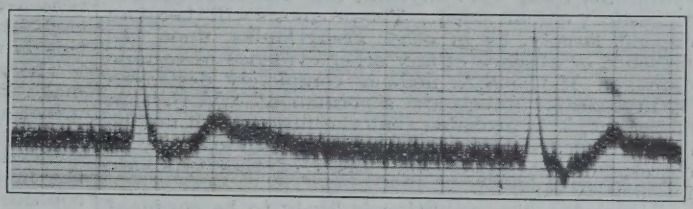


Shows A.V. rhythm, Type II. Note absence of definite P waves in all leads. Small notch on S waves may represent the submerged P wave.

be upright or inverted, as mentioned above, rding to whether the impulse arrives at the upper wer part of the auricle first. An example of this , occurring as an isolated event—ventricular pe—is to be seen in lead II., Fig. 1, where the ular complex shows a shortened P.R. interval a P wave with a sharper summit than normal.

ype II.—In which the impulse arises in the lle of the junctional tissues and spreads simultaneously to the auricles and ventricles. The P wave is thus submerged in the Q.R.S. complex, sometimes being represented by a notch on the R or S waves. The absence of the P wave does not indicate cessation of auricular contraction, as the polygraph shows that in many cases the auricles are contracting simultaneously with the ventricles. Fig. 2 is an example of this type. No definite P wave is present, because it is submerged in the Q.R.S. complex, though it is possible that the slight notch on the S waves may represent P. This example of A.V. rhythm was produced in the patient described by the administration of atropine. The electrocardiogram was taken 40 minutes after the injection of the atropine.

FIG. 3.



(Lead II.) A.V. rhythm, Type III. Note that P waves follow R waves and are inverted.

Type III. is characterised by an R.P. interval of varying length—i.e., the P wave occurs after the R wave because the stimulus from the A.V. node reaches the ventricle before it reaches the auricle. This occurs if the stimulus arises in the lowest position of the junctional tissues or, per contra, in the middle of these tissues, but is associated with defective conductivity of the A.V. bundle. Fig. 3 shows in lead II. A.V. rhythm of this nature. The P wave follows the Q.R.S. complex by an appreciable interval and is inverted. Probably the R.P. interval is induced by depression of conductivity of the A.V. bundle by digitalis, which delays the stimulus in its passage to the auricle. As a general rule it will be noted that the P wave is positive when preceding and negative when following the R wave. A study of the P.R. interval has shown that it varies considerably in length from time to time, suggesting that the position in the junctional tissues from which the A.V. rhythm arises is constantly varying. Possibly this may account for the arrhythmia which is commonly present in A.V. rhythm. Another explanation of this, however, is that the rate of stimulus production undergoes variation. The former explanation seems to be negatived by the observations made by P. D. White that, although the P.R. interval may vary in the same patient from 0·123 to 0·235 on different days, yet the variation from beat to beat is negligible.

Extrinsic Factors Affecting A.V. Rhythm.

P. D. White,[9] studying a case of prolonged A.V. rhythm following auricular flutter, observed the following facts:—

1. Exercise increases the rate of the heart. In the case recorded in this paper the rate rose from 48 to 56 after moderate exercise.

2. Quiet respiration has little effect. Deep respiration produces acceleration with inspiration, and slowing with expiration. This fact was also confirmed in the present case.

3. The effect of atropine was to increase the heart-rate in White's case, but not to restore S.A. rhythm. In the case mentioned here, a partial A.V. rhythm (ventricular escape) was converted into a continuous A.V. rhythm for 15–20 minutes by the administration of atropine.

4. A.V. rhythm is markedly affected by vagal influences, stimulation leading to a decrease in the heart-rate which

may be extreme. On one occasion it has led to a pause of 4 seconds.

5. In White's case digitalis had no effect on the rate of the rhythm, but bigeminy was produced.

In the present case the rate after digitalis was slightly lower than before its administration—45 per minute instead of an average of 52. Further, the rhythm became continuously nodal, and the P wave became more and more delayed in its appearance, eventually following the R wave.

Prognosis, Diagnosis, and Treatment.

From the cases recorded in the literature it would seem that very few patients have any untoward symptoms from A.V. rhythm, and the heart is not necessarily embarrassed. The prognosis will therefore depend largely, as in other arrhythmias, upon the presence or absence of any other evidence of cardiac damage. If the S.A. node is completely destroyed by myocardial fibrosis and a permanent A.V. rhythm is present, it is probable that the fibrosis will not be confined to the S.A. node and the outlook will be correspondingly grave, but cases of this type are fortunately rare.

Diagnosis.—The condition is likely to be confused with other arrhythmias of which bradycardia is a feature, and the importance of its recognition depends upon the different prognosis which attaches to these other irregularities.

1. Heart-block is the most important of these. In complete heart-block the rate of the heart is usually about 30 per minute, and regular, whilst in A.V. rhythm it is commonly 45–55 and irregular. Difficulties may arise, however, if the heart-block is associated with premature beats. Partial heart-block may so closely resemble A.V. rhythm that a diagnosis can only be established by means of electrocardiograms or polygrams. The diagnosis between the two conditions is obviously of considerable importance, as partial heart-block is almost invariably a more serious lesion than A.V. rhythm.

2. Auricular fibrillation is sometimes associated with bradycardia, but as a rule the rhythm is more completely irregular than A.V. rhythm. Absence of jugular pulsation in fibrillation or the presence of unduly large waves in A.V. rhythm, due to synchronous contraction of auricles and ventricles, may be helpful points, but electrocardiograms may be necessary.

Treatment.—Generally A.V. rhythm calls for no special treatment, unless it is a part of some other cardiac disability requiring attention. For the vertiginous attacks atropine would seem the rational drug to employ, as it increases the rate of the rhythm; it is probable that these attacks are due to excessive slowing of the heart, similar to that of heart-block.

Summary.

1. The close relationship of A.V. rhythm and ventricular escape seem to justify their inclusion under the common heading of atrio-ventricular rhythm.

2. A case of A.V. rhythm is described, illustrating its occurrence occasionally during S.A. rhythm (ventricular escape), and the effect upon it of atropine and digitalis in producing a continuous A.V. rhythm of Types II. and III. respectively.

3. A suggestion is made for the treatment of the attacks of vertigo which are liable to occur.

I am indebted to Dr. C. Hamilton Owen and to Dr. N. B. Capon for permission to investigate the case described here. My thanks are also due to Dr. John Hay for valuable advice, and to Sir Thomas Lewis, who kindly gave his opinion on some of the electrocardiograms.

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DEXTRINURIA: ITS CLINICAL SIGNIFICANCE.

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THE diagnostic significance of an excess of carbo hydrate in the urine may be said to date from th discovery by Trommer of a simple and striking tes for reducing sugars. This was described in 1841, afte Trommer's death, by Mitscherlich. The simplicity c the test and its modifications, and the undoubte clinical value of its results, have focused attentio almost entirely upon the reducing sugars, so that th presence of abnormal amounts of other forms c carbohydrate is largely ignored; I hope to prove tha this is unfortunate.

The physical characteristics of starch and glycoge make it unlikely that either can be excreted in th urine, although Leube [1] discovered what he believe to be glycogen in severe diabetes, and Hirsch [2] ha claimed that starch granules may be passed afte the ingestion of raw starch. Voigt was unable t confirm Hirsch's experiments, and Simon has show that Leube's findings were caused by glycogeni degeneration of the kidneys, so that the occasiona occurrence of these substances in the urine apparently to be attributed to local causes. Th higher intermediate products of starch or glycoge hydrolysis and digestion, known collectively a dextrins, are colloidal, and so are not likely to b excreted by the kidneys unchanged, but the lowe soluble forms can probably pass readily into th urine without material alteration. Experiments upo animals have shown that dextrins gaining entrance t the systemic circulation are largely excreted in th urine. P. Mayer [3] recovered 34 to 50 per cent. of th dose when 10 g. of erythrodextrin were injected sul cutaneously into rabbits, while Mendel and Mitchell working with rabbits and cats, recovered fro 0·22 to 0·88 g. after the injection of 2 to 3·5 g. of th mixed dextrins prepared by the action of saliva o starch. Fritz Voit,[5] after the injection of amyl dextrin into human beings, found that fro 10 to 28 per cent. appeared in the urine as achro dextrin, and this is the form in which dextrins usuall appear to be excreted, irrespective of their origin composition, the higher varieties undergoing chang in the tissues or in the process of elimination. I some circumstances the change may apparently g further, for F. M. Allen[6] found that large subcutaneou injections of dextrin may cause an excretion c reducing sugar as well as of achroodextrin, althoug small doses do not give rise to glycosuria.

Source of Urinary Dextrins.

Dextrins appearing in the urine may enter th circulation from the digestive tract, being the derived from starch, or may be produced withi the organism during the building up or breaking dow of glycogen, some defect in the process stopping short at a dextrin stage. There can be no doul that a large proportion of the carbohydrate taken a food is absorbed from the intestine as simple sugar but there is no proof that it is entirely taken up i that form, and probably it is not. In vitro it not possible to convert into sugar all the dextri formed during the process of starch digestion, an the same is no doubt the case in the alimentary trac Otto [7] and v. Mering [8] have both demonstrated tha carbohydrates resembling dextrins are present in th blood of the portal vein during active carbohydra absorption, so it seems that the unchanged dextrin are absorbed. The tolerance of most animals fo dextrins given by the mouth is high, although th actual limit and the effect of an overdose appear t vary with the species. Rabbits, for example, hav been shown by Jones [9] to be very tolerant, wheth the dextrin is given orally or subcutaneousl Schwarz [10] found that rats, on the other han invariably pass hydrolysable carbohydrate in the urine when fed on a diet of cooked starch, probabl

owing to the contained dextrins, as F. M. Allen [6] has proved that the same effect is not produced by a diet of uncooked grain. In human beings Folin and Berglund [11] showed that dextrinuria can be produced by large dextrin meals and that the excretion of polysaccharides continued for three or four days after the special diet had been discontinued. Working with rabbits, Mr. Howard and I [12] found that dextrins given by the mouth are largely absorbed as such into the portal circulation, but that on reaching the liver they are almost completely retained, only traces passing into the systemic circulation. If, however, the functions of the liver have been interfered with by the previous subcutaneous injection of a small dose of an hepatic poison, such as hydrazine phosphate, hydrolysable carbohydrate appears in the peripheral circulation in abnormal amounts and dextrins are excreted in the urine. It would therefore seem that the tolerance of an animal for dextrins given by the mouth is related to the functional activity of its liver and that pathological alimentary dextrinuria is to be regarded as an expression of hepatic insufficiency, but not necessarily of gross anatomical changes, since dextrinuria can be produced in apparently healthy people by overworking the liver. Willheim [13] and Langer [14] found that dextrinuria may follow the administration of dextrose or lævulose to healthy individuals, and later Pekelharing and Van Hoogenhuyze [15] showed that, if 175 g. of cane sugar were taken daily for four days, the amount of dextrin excreted in the urine increased from 5·4 g. on the first day to 14·6 g. on the fourth, and that on the last day traces of reducing sugar also made their appearance. In the course of our observations we have found that when a small dose of glucose was taken and a second similar dose was administered at the time of the anticipated maximum effect of the first on the blood-sugar, a much longer and more pronounced rise occurred in the hydrolysable carbohydrate than in the reducing sugar of the blood; this suggested that part of the second dose escaped into the general circulation in an imperfectly metabolised form intermediate between dextrose and glycogen, owing to the failure of the liver to carry out its glycogenetic functions completely. Experiments reported by Franke and Wagner [16] tend to support the view that the liver is the organ responsible for, experimenting with dogs, they found that if the organism were flooded with large doses of glucose by intravenous, intraperitoneal, or rectal injection, so as to avoid the normal absorption path through the portal circulation, hydrolysable carbohydrate appeared in the blood within a very short time, and that as it increased there was a diminution in the fermentable reducing sugar.

Disturbance of the Liver, Pancreas, and Pituitary as Causes of Endogenous Dextrinuria.

An abnormal excretion of hydrolysable carbohydrate in the urine, independently of feeding, can be produced experimentally in animals in several ways. We have seen that the subcutaneous injection of a small dose of hydrazine phosphate causes alimentary dextrinuria in rabbits, in spite of their high natural tolerance for dextrins. Further experiments [12] have shown that, if the rabbits are kept without food and a second larger dose is injected 24 hours later, the percentage of reducing sugar in the blood falls and the proportion of hydrolysable carbohydrate increases, while hydrolysable carbohydrates appear in the urine, as the functions of the liver are progressively interfered with by the poison, until, shortly before death occurs, some two-thirds of the total carbohydrate of the blood may consist of non-reducing hydrolysable material and only one-third of reducing sugar. In these circumstances the hydrolysable carbohydrate in the blood and urine can only be of endogenous origin and is probably derived from the stored glycogen of the liver which the poisoned cells are unable to break down completely to the normal end-product of sugar. Disturbances in the functions of the pancreas are probably a much more common cause of endogenous dextrinuria than disease of the liver, since with the latter it apparently occurs only at an advanced stage, whereas with the former it is one of the earliest effects. Experiments I carried out with Dr. H. C. G. Semon in 1908 [17] demonstrated that when subacute pancreatitis was produced in dogs by injecting a small quantity of turpentine into the pancreatic duct, a large excess of non-reducing hydrolysable carbohydrate appeared in the urine within 24 hours, although a similar injection into the common bile-duct had no such effect. We also found that there was an unmistakable increase in the excretion of hydrolysable carbohydrate when chronic pancreatitis was induced by passing a silk thread from the duodenum along the duct of Wirsung, and that if the pancreas was subsequently excised the excess of hydrolysable carbohydrate disappeared from the urine and was replaced by fermentable reducing sugar. Later observations upon animals, conducted with the help of Mr. Cairns Forsyth and Mr. Howard,[18] have confirmed these results and shown that an experimental diminution of the internal secretion of the pancreas, produced by removing a portion of the gland, invariably gives rise to an increase in the proportion of hydrolysable carbohydrate in the fasting blood and an excretion of dextrin in the urine, and, further, that as the control of the pancreas over carbohydrate metabolism is rendered less and less efficient by excising larger portions, the excess of hydrolysable carbohydrate in the blood is gradually replaced by hyperglycæmia, and the dextrinuria by glycosuria, of increasing intensity. In a one-third depancreatised dog, for example, we found a fasting blood-sugar of 100 mg. per cent. and a hydrolysable carbohydrate of 300 mg. per cent. In a two-thirds depancreatised animal the fasting blood-sugar stood at 130 mg. per cent. and the hydrolysable carbohydrate at 170 mg. per cent., while in a practically depancreatised dog there were 190 mg. per cent. of reducing sugar and only 10 mg. per cent. of hydrolysable carbohydrate. The urine of the first animal contained a pronounced excess of dextrin, the second less, and in the urine of the totally depancreatised dog none could be found. As these results were obtained after an eight or ten hours' fast, alimentary dextrinuria can be excluded and an endogenous origin for the excess of hydrolysable carbohydrate in the blood and urine seems to be the only explanation. The influence of feeding upon the carbohydrate content of the blood of partially depancreatised animals suggests that the excess of hydrolysable material present in the fasting blood is derived from the stored glycogen of the tissues, for the percentage is found to fall in proportion as the percentage of reducing sugar increases, and rises again as the sugar diminishes (Fig. 2). This indicates that when a fresh supply of sugar is available to meet the needs of the body, and there is consequently a diminished call upon its reserves, a corresponding reduction occurs in the proportion of imperfectly metabolised sugar entering the blood. A third possible cause of endogenous dextrinuria is defective glycogenolysis arising from the abnormal activity of influences having an effect upon carbohydrate metabolism opposite to that exerted by the internal secretion of the pancreas, so that, although the latter is actually formed to a normal extent, there is a relative deficiency. Experiments rendered possible by the discovery of insulin have proved that pituitrin combines chemically with insulin at the average reaction of the blood and that adrenalin is physiologically antagonistic to insulin.[19] An excess of either in the blood may, therefore, be expected to have the same effect as a corresponding deficiency of the internal secretion of the pancreas. The results of subcutaneous injections of these substances tend to support this view, since an increase occurs in the hydrolysable carbohydrate of the blood, varying in degree with the strength of the dose employed. Demonstrable dextrinuria is difficult to produce experimentally in this way, but it seems likely that hyperactivity of the pituitary, and probably also of

the suprarenals, must be considered as possible causes of pathological dextrinuria, judging from the pronounced excess of dextrins found in the urine, and of hydrolysable carbohydrate present in the blood of several cases of acromegaly which I have examined. As our experiments have also shown [12] that electrical stimulation of the vagus is associated with a similar increase in the hydrolysable carbohydrate of the blood, nervous influences may possibly play a part in the production of dextrinuria in some circumstances.

The occurrence of dextrin-like substances in the urine was first demonstrated, in 1894, by Baisch,[20] who showed that the "animal gum" described by Landwehr in 1882 [21] was mainly of this nature. Baisch, and most observers who have since investigated the subject, separated the dextrin as an insoluble benzoyl ester. Prepared in this way, it is found to be an amorphous, tasteless, odourless substance which dissolves completely in water to give a clear solution. The aqueous solution is feebly dextro-rotatory, is not fermented by yeast, and does not give a brown coloration with iodine. It does not reduce alkaline solutions of copper or bismuth, but yields a reducing unfermentable substance giving the orcin and phloroglucin reactions of a pentose (xylose) on being boiled with dilute hydrochloric or sulphuric acid for a short time, and fermentable reducing sugars on more complete hydrolysis. Urinary dextrin is insoluble in alcohol and ether, is precipitated from aqueous solution by soluble salts of mercury or lead, and is also precipitated from strongly alkaline solutions by copper salts. On being boiled with strong hydrochloric acid it forms furfuraldehyde and gives a furfurol reaction with α-naphthol. Heated with nitric acid it yields oxalic acid. Purified urinary dextrin is free from nitrogen and, according to our analysis,[22] contains carbon 43·8 per cent., hydrogen 6·2 per cent. and oxygen 50 per cent., with a probable formula $(C_6H_{10}O_5)_n \cdot C_5H_9O_5$.

Clinical Tests for Dextrin.

The separation of dextrin from urine by the benzoyling process is far too long and elaborate for clinical purposes, and other simpler, though less exact, methods have to be relied upon for detecting its presence. Landwehr employed precipitation with copper sulphate, after the urine had been made strongly alkaline with caustic soda, but the results are very uncertain unless a high percentage of dextrin is present. In 1904 I described a more delicate test [23] in which the sugar, formed on boiling a urine containing dextrin for a short time with dilute hydrochloric acid, is separated as a crystalline osazone, after the excess of acid has been neutralised with lead carbonate and any glycuronic acid which may be present has been removed with tri-basic lead acetate. This test was originally devised merely as a means for assisting in the clinical differentiation of chronic pancreatitis from malignant disease of the head of the pancreas, a purpose which it served reasonably well, and it was not until some time later that its exact significance was realised and proof of its underlying cause was obtained.[24] As a clinical test for dextrinuria it is still the simplest available, but care is required in its performance and suitable controls are needed to exclude other substances forming crystalline osazones. Since traces of dextrin may occur in normal urines and cause difficulties, and some cases of pathological dextrinuria pass a small excess of sugar in their urine, it is safer to adopt a quantitative process and estimate the reducing material formed on heating the urine with hydrochloric acid under standard conditions. The method now employed in my laboratory is carried out as follows :—

Twenty c.cm. of the filtered urine are placed in a small flask, and 2 c.cm. of hydrochloric acid (sp. gr. 1·16) are added. The neck of the flask is closed with a small funnel and the contents are gently boiled for ten minutes. The excess of hydrochloric acid is then neutralised by adding 5 c.cm. of a saturated solution of sodium carbonate, and the flask is cooled under running water. After making the contents faintly acid with acetic acid and shaking until frothing ceases, they are poured into a 50 c.cm. graduated flask and the transference completed with two or three small washings of water. The contents of the graduate are now well shaken with 5 g. of tri-basic lead acetate, made up to 50 c.cm. with water, allowed to stand for ten minutes and filtered, repeating if necessary until a clear filtrate (A) is obtained. In another graduated flask 20 c.cm. of the original urine are shaken with 5 g. of tri-basic lead acetate made up to 50 c.cm. with water, and filtered, yielding a second clear filtrate (B). Into each of two small flasks is now introduced 10 c.cm. of a specially prepared copper solution * and to one is added 5 c.cm. of the filtrate "A" and to the other 5 c.cm. of the filtrate "B." The necks of the flasks are closed with small funnels and the flasks are heated in a boiling saturated solution of sodium chloride for exactly five minutes. The flasks are then cooled in running water and 3 c.cm. of sulphuric acid (30 per cent.) are added to each from a pipette, after which the contents are immediately titrated with freshly made N/100 sodium thiosulphate solution, using three drops of 1 per cent. starch solution as an indicator. The figure obtained by titrating a control, consisting of 10 c.cm. of the special copper solution and 3 c.cm. of sulphuric acid (30 per cent.) with the same dilution of thiosulphate and starch as the indicator, is subtracted from each of the findings. The difference between the results thus obtained, multiplied by 5000 and divided by 6, gives, approximately, the dextrin value of the urine in milligrammes per cent.

This method does not give reliable results in the presence of lævulose, lactose, or maltose, and should not be used when there is more than 0·1 per cent. of dextrose. It is then necessary to employ the modification of Jolles's process for estimating pentose which I described under the name of the "iodine coefficient of the urine" in 1913.[6] In order to obtain figures comparable with those given by the method just described, and to express the result in milligrammes of dextrin per cent., it is necessary to multiply the finding by 50. By either method an excretion of dextrin exceeding 150 mg. for the 24 hours may be considered as abnormal.

Significance of Non-reducing Hydrolysable Carbohydrate in the Urine.

Although it is not strictly accurate to regard all non-reducing hydrolysable carbohydrate materials occurring in the urine and blood as dextrins it is convenient to do so in practice, for, whatever its exact chemical composition may be, the presence of an excess of such material has the same clinical significance and indicates an early disturbance of carbohydrate metabolism. The nature of the disturbance can only be determined, however, by carrying out further tests, since dextrinuria, like glycosuria, is not characteristic of any particular defect. Alimentary dextrinuria, as we have seen, is indicative of an anabolic disorder and is associated with faults in the functions of the liver, while endogenous dextrinuria results from a katabolic defect and most commonly arises from an absolute or relative deficiency of the internal secretion of the pancreas, although it may occasionally be produced by advanced destructive lesions of the liver. A partial differential diagnosis may be made by comparing the percentage of dextrin in a sample of urine passed after a fast of six or eight hours with the percentage in a specimen collected during the three or four hours following a mixed meal, but the result is at best only a rough guide and is not very dependable. A much more reliable opinion as to the cause of a pathological dextrinuria can be formed by estimating the percentage of hydrolysable carbohydrate ("difference value") and reducing sugar in the blood, fasting, and again at hourly intervals after a test-meal containing cooked starch. When the figures obtained in this way are plotted out three types of curve can be distinguished. In the first, or hepatic type (Fig. 1), the fasting values for the hydrolysable carbohydrate and reducing sugar are not abnormally high, in fact the sugar is usually low (80 mg. per cent. or less) ; after a meal the sugar

* *Special Copper Solution*, I. Copper sulphate 5 g., tartaric acid 7·5 g., pot. carbonate 59 g., distilled water 400 c.cm. II. Pot. iodide 10 g., pot. biniodate 0·7 g., pot. oxalate 18·4 g., distilled water 250 c.cm. Mix and make up to 1000 c.cm.

ncreases, although it may not reach the normal maximum, but the hydrolysable carbohydrate undergoes little change until the lapse of an hour or two, when it increases rapidly; by the fourth hour it may equal or exceed the reducing sugar in value. In the second, or primary pancreatic type (Fig. 2), the reducing sugar of the fasting blood stands at or above 100 mg. per cent., and the hydrolysable carbohydrate is considerably in excess of the normal average of 4 or 5 mg. per cent., the exact relation between the two depending upon the degree of pancreatic deficiency. After a meal the reducing sugar rises, perhaps to a pathological level, but the hydrolysable carbohydrate diminishes, and may temporarily disappear, to increase again as the percentage of sugar falls. In the third type (Fig. 3) the hydrolysable carbohydrate of the fasting blood is not excessive, but as the percentage of reducing sugar rises after a meal there is a corresponding increase in the hydrolysable carbohydrate, followed by a fall as the sugar returns towards the fasting level. Concurrent curves of this type appear to be associated with faulty glycogenosis arising from glandular and nervous disturbances interfering with the normal control of the pancreas over the process. Destructive lesions of the liver, of sufficient intensity to cause a pronounced rise in the hydrolysable carbohydrate of the fasting blood, can be distinguished from the similar increase due to primary pancreatic insufficiency by the level of the reducing sugar, which is subnormal with the former and normal, or above the normal, with the latter. Moreover, the clinical symptoms differ so widely that the two conditions are not likely to be confused. By carrying out these additional tests it is possible to form an opinion as to the immediate cause of a dextrinuria, and from the clinical symptoms, considered in conjunction with the results of other analyses of the blood, urine, and fæces, indications of the probable origin of the condition can often be obtained.

FIG. 1.

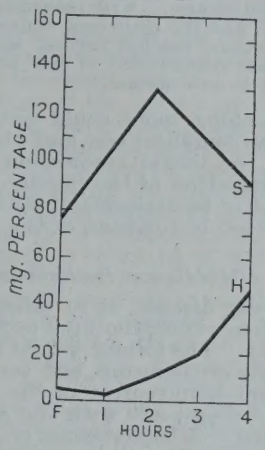


FIG. 2.

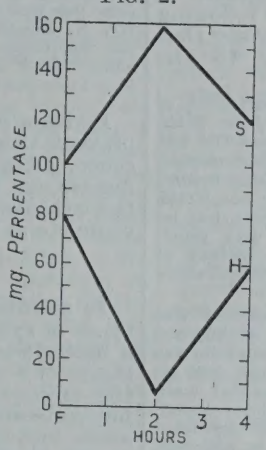
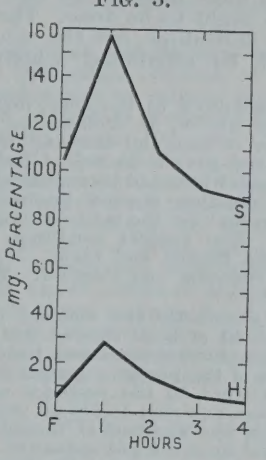


FIG. 3.



A lengthy experience of the methods of analysis I have described has afforded convincing evidence that they are of material assistance in the diagnosis of a variety of pathological conditions which it is otherwise difficult to differentiate with any degree of certainty. They are also of clinical value for another reason, and this is that they provide a means of discovering defects of carbohydrate metabolism at an earlier stage than any other at present available. The early diagnosis of pancreatic disturbances is particularly important, as they are liable to give rise to diabetes if allowed to progress unchecked. It is generally agreed that, if diseases of the pancreas causing deficiency of the internal secretion of the gland could be detected and dealt with in a pre-diabetic stage, the prospect of a permanent cure would be very considerably increased. I have found that dextrinuria invariably precedes the onset of glycosuria in such cases, often by months and sometimes by years, so that the discovery of its presence would seem to offer such an opportunity for commencing treatment before irreparable damage has been done. The early diagnosis of defects of carbohydrate metabolism due to relative deficiency of the internal secretion of the pancreas affords even better chances of instituting radical treatment than the discovery of an absolute deficiency, since persistent glycosuria develops only when the pancreas is exhausted and an actual deficiency of its internal secretion occurs. My observations on this type of case have shown that the characteristic concurrent curves of the hydrolysable carbohydrate and reducing sugar in the blood give place to the reversed curves of a primary pancreatic deficiency as the disease progresses, but that the concurrent curves reappear as improvement occurs under suitable treatment.

Dextrinuria arising from disturbances in the functions of the liver may apparently exist for many years without any definite signs of a diabetic condition developing, although the not infrequent presence of lævulose, pentose, and similar reducing substances in the urine occasionally leads to an incorrect diagnosis being made. In some instances I have seen alimentary glycosuria develop as a sequel of dextrinuria due to hepatic insufficiency, but always in people past middle life, and it is rather significant that alimentary dextrinuria may be found in one or more of the younger members of a family in which there is a history of glycosuria, usually of a mild type, occurring in old age.

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PRESENTATION TO A MEDICAL MAN.—Dr. James Murray was recently entertained to dinner by doctors from Inverness and various parts of Ross-shire and Inverness-shire, to celebrate his jubilee as a general practitioner. Dr. J. W. Mackenzie presided, and Dr. John Macdonald, medical officer of health for Inverness town and county, proposed Dr. Murray's health, remarking in the course of his speech that he had been the first to introduce antiseptic surgical treatment in the Northern Infirmary. Dr. Murray, after being presented with a silver salver, described his good fortune in being closely associated with Lister as a prizeman and student in his class, and later on as house surgeon in Edinburgh Royal Infirmary under Sir Patrick Heron Watson. Dr. Murray graduated as M.B. in 1876 and as M.D. five years later. He went to Inverness in 1879.

OBSERVATIONS ON AURAL SYSTEMIC INFECTION.

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IT is a well-recognised fact in otological practice that cases of aural systemic infection present most puzzling features, both in diagnosis and in treatment. The latter is made more difficult by the variety of opinion as to what ought to be done. The following case illustrates the difficulties, but the recovery that took place cannot be attributed wholly to the treatment.

A girl of 13 was admitted to the aural department of Guy's Hospital under Mr. W. M. Mollison on June 28th, 1927. She complained of pain and discharge from the left ear for seven days, and gave a history of feeling unwell, with headaches and pain which had become localised behind the left ear. Examination showed profuse non-fœtid discharge, and tenderness over the mastoid process, but no œdema or redness. Her general condition was good, although she appeared flushed and toxic. No history of shivering attacks or vomiting was obtained. Temperature was 102° F., pulse 84.

Under a general anæsthetic the mastoid process was exposed. Early removal of bone showed pus oozing out under pressure. When further bone was removed it was found that the limits of the posterior cranial fossa and its contents extended forward to the posterior meatal wall. The mastoid antrum was, however, deeply set, well developed, and full of pus. This was approached through the outer attic wall. The lateral sinus did not appear to be affected, being of good colour, soft, and smooth. There was no collection of pus in the "sinus groove." The upper half of the wound was closed, and a rubber drain inserted into the lower half.

On the 30th, two days later, there was a decided change in the patient. Her temperature rose to 105°, and respiration to 30; her lips were slightly cyanosed. She complained of vomiting and headaches, and at times became very restless and irrational. It was difficult to make a definite diagnosis. The absence of rigors somewhat disfavoured sinus thrombosis; the headaches, vomiting, restlessness, and temperature favoured meningitis, yet she had no neck rigidity or tenderness. A lumbar puncture was made, and a small amount of cerebro-spinal fluid was withdrawn; it was under pressure but clear. Direct examination showed many polymorphs, but not enough to cause turbidity. The lumbar puncture seemed to relieve her immediately of the headaches and restlessness. There were signs of bronchitis in both lungs.

The following day saw the disappearance of the headaches and restlessness, and there was still no neck rigidity. Her temperature was 104°, and although rigors were absent, the conclusion was that she was either suffering from sinus thrombosis or a generalised systemic infection secondary to mastoiditis. Under a local anæsthetic the internal jugular vein was ligatured and cut, but the sinus was left alone and not explored. At the same time blood was taken for culture, and 70 c.cm. of polyvalent antistreptococcus serum given intravenously. The following day her left knee-joint became markedly painful and tender. Examination of the urine showed albumin, blood, and pus cells. The blood culture gave a growth of *Streptococcus longus hœmolyticus*.

The clinical picture was now one of a generalised systemic infection, primarily of mastoiditis, with secondary nephritis, arthritis, and bronchitis. Another 70 c.cm. of antistreptococcal serum were given. This resulted in a severe rigor, the temperature reaching 105° and pulse-rate 150. The following day the temperature became normal, but reached 104° in the evening, so another 70 c.cm. of serum were given. This was again followed by a similar reaction, the temperature rising again to 104°.

The following day the patient was seen by Prof. J. W. H. Eyre, who gave her an injection of mercurochrome. Two days later another 10 c.cm. dose was given. The blood culture at this stage was negative, but the temperature kept on swinging between 100° and 104°.

On July 15th—i.e., 14 days later—on the advice of Dr. J. A. Ryle, her chest was aspirated, and 30 c.cm. of straw-coloured fluid were withdrawn, and two days later a similar amount was aspirated; yet her temperature remained high. Direct examination of the aspirated fluid showed many cells, 70 per cent. polymorphs, and 30 per cent. mononuclears, and many streptococci. Cultures gave a growth of hæmolytic streptococcus longus.

Blood picture about this date (third week after the operation): hæmoglobin, 53 per cent.; red cells, 2,920,000 per c.mm.; colour-index, 0·9; white cells, 9880 per c.mm.; polymorphs, 72·6 per cent.; lymphocytes, 18·6 per cent.; eosinophils, 0·6 per cent.; hyaline cells, 7 per cent. This picture gives a clear idea of the low state of her resistance and blood transfusion was discussed. It was, however, decided that it would be better to leave her alone. Her treatment therefore became limited to good nursing, nourishment, and sunshine. She appeared extraordinarily well mentally, and took a keen interest in everything.

On August 2nd—that is, 24 days after the first aspiration—her pulse-rate shot up to 150, and respiration to 35. On the advice of Dr. Ryle her right chest was aspirated; this time pus was withdrawn. A rib resection was performed by Mr. N. Echoff, and the empyema drained. The following day her temperature reached normal, and has remained so since. The last examination of her urine was negative. Her knee-joint is now normal.

Perhaps nothing more could have been done to prevent these complications and the long convalescence, after the initial eradication of the mastoid disease and resection of the jugular vein. Therefore the treatment of bacteriæmia of otitic origin is not as complete as that of toxæmia of the same origin.

Middle-ear Bacteriæmia.

In middle-ear disease, as in other conditions, two types of systemic infection may occur, a toxæmia or a bacteriæmia. The former can be seen in the early stages of acute otitis media, and can last throughout the subsequent involvement of the mastoid process, but generally disappears with the subsidence of the acute infection. A bacteriæmia, on the other hand, manifests itself when the primary disease in the mastoid process has spread to and into the venous blood channels. It is also evident when the initial mastoid disease is of the type characterised by primary involvement of the small blood-vessels—the typical clinical picture being that of the hæmorrhagic type of acute mastoid. The ototic systemic infections characterised by bacteriæmia can be produced in one of two ways, and there is no reason why the final treatment should differ. In the first variety the cellular elements in the mastoid process are subjected to the pressure of stagnant pus. A necrosis of the bony walls results, and produces the usual type of acute coalescent mastoiditis. By continuous pressure the sinus and dural plates can become necrosed from lack of blood-supply; this exposes the endocranium, which afterwards becomes the site of a perisinus or extradural abscess. Further continuous pressure causes injury to the endothelial lining of the sinus, and a thrombus develops. There is then present an infection of bacterial origin within the circulating blood; with the disintegration of the thrombotic mass this soon disseminates throughout the body and bacteriæmia results. This is the pathology of lateral sinus thrombosis, and the therapy in such a case is of two kinds, preventive and curative. Prevention is by timely surgical operation before the disease has reached and invaded the inner table. Once the systemic infection has become established, the curative treatment is the immediate removal of the septic thrombus in the blood channel and the obliteration of the route to the general circulation by ligation or resection of the internal jugular vein. If the systemic infection persists after these procedures the treatment of the infection per se can be considered, with the assurance that its source has been removed.

The other and more difficult type of mastoid disease which causes a systemic infection of bacterial nature is that characterised by the primary involvement of the small vessels in the mastoid process. It is caused generally by the hæmolytic streptococcus longus entering the lumina of the mucosal vessels. This results immediately in a multiplicity of infected thrombi; the infection, therefore, is located in the circulating venous blood, and not in the cell spaces. This does not cause destruction of the walls, because

they are not subjected to pressure necrosis. The disease is manifested by intense engorgement of the cell lining and by hæmorrhagic exudate into the cell spaces—hence the name of hæmorrhagic acute mastoiditis. From a clinical point of view, a systemic infection is present in the hæmorrhagic type from the beginning, and the disease itself is a systemic infection by virtue of its location within the blood stream—in other words, a venous thrombosis is present from the outset. The lesion in this case progresses by an intravenous growth of the thrombi towards the larger blood-vessels and not by the progression of a necrotic process. Consequently a perisinus abscess is rarely seen in this type of acute mastoiditis. The presence of bacteria in the blood stream does not depend on the presence of a septic clot in the lateral sinus, since particles of infected thrombi can be dislodged and find their way into the circulation as the small thrombi extend towards the larger vessels.

A determination of the extent of the thrombosis in this variety of hæmorrhagic mastoiditis cannot be made by mere inspection at the time of operation or by the subsequent course of the disease, since the sinus itself is invaded by the intravenous extension of the thrombi into its lumen. Therefore one must not look for the same indications for lateral sinus and jugular surgery in this type of mastoiditis as are found in the coalescent type. Early operation in these cases generally succeeds in eradicating all the infected thrombi in the mastoid venules, and this generally prevents further extension of the infection into the sinus. When the ordinary mastoidectomy proves sufficient to end the disease, the sepsis stops at once. On the other hand, where surgery fails to remove the thrombi, the sepsis continues, and there is a progressive diminution in the hæmoglobin and red cells, as in the case described.

H. Kerrison remarks that the blood picture furnishes a most valuable guide to the extent of the thrombosis; where, after simple mastoidectomy, the sepsis and the reduction in hæmoglobin and red cells continue, it shows that the larger blood exits are involved and is, therefore, an indication for opening the sinus and tying the jugular vein.

The Place of Blood Transfusion.

When, after this procedure, the anæmia becomes more marked, H. Hays maintains that blood transfusion is the best therapeutic agent. The hæmolytic organism in the blood destroys the hæmoglobin, and the resulting marked anæmia permits the bacteria to overcome the patient's resistance. J. McKernan remarks that in the differential blood count a high polymorph percentage without a proportionately high total white count gives an indication that the infection is gaining control over the body. Hays also maintains that there are no contra-indications to blood transfusion, properly given, for toxæmias and infections. The transfusion is used to replace lost hæmoglobin and red cells, and not to furnish antibodies, though the latter is valuable where it occurs. Transfusion ought to supply the best method of treating these cases of generalised infection after the operation to remove the septic focus in the temporal bone has been performed.

The other point of treatment that needs emphasis is that a case with aural discharge and symptoms of generalised infection with a positive blood culture warrants the performance of sinus and jugular surgery. It has been proved that in these cases there is always thrombosis. L. Libman, in 1908, showed that sinus thrombosis and meningitis are the only otitic complications giving rise to general bacteriæmia.

I am indebted to Mr. Mollison for permission to operate and publish the details of the above case, and for his valuable help. Also to Mr. R. Jarman, the house surgeon, for his untiring efforts in seeing to the details of the treatment.

Clinical and Laboratory Notes.

NOTE ON THE EFFECT OF ANÆSTHETICS ON BLOOD IODINE.

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AND
I. LEITCH, M.A., D.SC.
(*From the Rowett Research Institute, Aberdeen.*)

THE fact that anæsthetics may have a marked effect on the iodine content of the blood was first noted accidentally in rabbits killed with chloroform. The blood of rabbits normally has an iodine content of from 10γ to 15γ per 100 c.cm.[1] In the blood sampled immediately after death under chloroform only a trace of iodine was found. Following this discovery a few experiments were done on goats with administration of chloroform or ether, the blood being sampled before and after the anæsthetic; samples of human blood were also taken before and after operations under different anæsthetics. Iodine estimations on these samples have shown that in some cases a very marked rise or fall in blood iodine occurs, a fall usually occurring under chloroform and a rise under ether. The table summarises the results.

Expt.	Subject.	Anæsthetic.	Time—minutes.	Blood iodine γ per 100 c.cm.
1	Goat.	—*	—	42
		Chloroform.	5	34
		"	30	19
		"	60	17
2	"	—*	—	19
		Chloroform.	15	13
3	"	—*	—	18
		Chloroform.	10	13
		"	20	9
4	Human.	—*	—	48
		Chloroform.	45	10
5	"	—*	—	95
		Chloroform.	35	Trace.
6	"	—*	—	12
		Chloroform.	35	106
7	"	—*	—	13
		Chloroform.†	12	50
8	Goat.	—*	—	16
		Ether.	30	18
		"	60	18
9	"	—*	—	27
		Ether.	10	19
		"	30	17
10	Human.	—*	—	25
		Ether.	30	20
11	"	—*	—	19
		Ether.	12	18
12	"	—*	—	15
		Ether.	25	163
13	"	—*	—	23
		Ether.	45	313
14		—*	—	23
		Ethyl C. & E.	20	29
15	"	—*	—	12
		Ethyl C. & E.	35	13
16	"	—*	—	18
		Ether, G. & O.	15	111
17	"	—*	—	11
		G. & O.	45	24

—* = Before anæsthetic. † Cocaine and adrenalin.
C. & E. = Chloride and ether. G. & O. = Gas and oxygen.

[1] γ = 0·000001 gramme.

The results are not altogether uniform, and possible complications are involved in these preliminary observations from the simultaneous administration in some cases of adrenalin. It has already been shown by Veil and Sturm [2] that adrenalin raises blood iodine. The observations appear, however, to be of some clinical importance, and the investigation is being continued.

In these preliminary observations there are indications that the age and sex of the patient and the nature of the disease may affect the level of blood iodine. In the further work to be done account will be taken of the possible influence of these factors.

CONCURRENT APPENDICITIS AND MECKEL'S DIVERTICULITIS.

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ALTHOUGH the signs of appendicitis closely resemble those of Meckel's diverticulitis, and the one condition is often confused with the other, their simultaneous occurrence has seldom been recorded.

A boy of 9 was admitted into hospital on May 26th, 1927, with the usual signs of acute appendicitis. A cœliotomy was performed by the gridiron incision, and the appendix was removed. It was swollen and inflamed, and its distal half was surrounded by some pus. A small drain was inserted, and for the ensuing seven days the progress, though slow, appeared satisfactory. On June 3rd his abdomen was tumid, and later he began to vomit fæculent material. A secondary obstruction was diagnosed, and the abdomen was opened in the mid-line. The cavity was full of fæcal-smelling pus. A Meckel's diverticulum, about 2 inches long, was found on the border of the ileum, to the right of the mid-line. The diverticulum was perforated at its base, but its distal end was free and did not share to any extent in the inflammation. The base was not constricted, nor was the ileum. The diverticulum was removed, and the perforation was sutured without causing any narrowing of the bowel. The patient recovered without further interruption.

Ulceration at the base of the diverticulum is known to be a cause of narrowing of the adjacent segment of bowel, but perforation there is an uncommon sequel.

A CASE OF ERECTION OF THE VERMIFORM APPENDIX.

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THE following case seems sufficiently interesting to record.

The patient, a female aged 30, was admitted to hospital with a diagnosis of acute appendicitis. An emergency operation was carried out, the abdomen being opened by a right paramedian incision. When the parietal peritoneum was opened the appendix, turgid, hard, and much thickened, rose slowly from the wound with its mesentery dependent from it, looking like the style on a sun-dial.

The cause of this surprising condition was found to be an extremely acute kink at the base of the appendix. On releasing the kink the condition at once subsided, leaving an appendix to all appearances normal.

As the whole length of the appendix appeared to be equally affected, it is probable that the entire vascular supply was derived from the cæcal vessels, which would favour hæmorrhage into the bowel unless an efficient ligature were put on the cæcum. In my experience catgut has proved unreliable in this situation. The ligature embraces the wall of the cæcum and not the base or "stump" of the appendix. The effect of a purse-string suture is to cause inversion from the peritoneal aspect, but there is a distinct possibility of eversion towards the cæcal lumen, and consequent slipping of a catgut ligature with its relatively inefficient "bite."

Several cases have been reported of severe hæmorrhage which could not have occurred had a reliable ligature been employed in this situation.

[2] Veil and Sturm: Deut. Arch. f. Klin. Med., 1925, cxlvii., 166.

Medical Societies.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF SURGERY.

AT a meeting held at Dublin on Nov. 18th Mr. ANDREW FULLERTON, the President, read a paper on the

TREATMENT OF ENLARGED PROSTATE.

As a general rule, he said, a patient did not seek relief for the symptoms of enlarged prostate before the age of 55–60. It was, however, a mistake to suppose that enlargement of the prostate was never a cause of urinary symptoms in men under 50 years, as was illustrated by several cases of his own in men as young as 45 and 47. The symptoms of the condition might be various. There might be frequency by day and not by night, or incontinence (due to the irregular shape of the urethra), or bladder distension without any trouble with micturition. He was often asked by patients, "Can I, with a reasonable degree of safety, postpone what I know is an inevitable operation for a few months, or a year or two?" The answer to this question, given careful supervision, was a "qualified affirmative"; it depended upon the patient's general health and the effect of obstruction on the kidneys. The President attached the greatest importance to a daily record of the amount of urine and of its specific gravity, both of which might be reported by the patient. Any evidence of failing health, or an increasing total quantity or progressive fall in specific gravity of the urine, indicated the necessity for reinvestigation. The advent of sepsis in the bladder was a serious complication and micro-organisms were likely to multiply in spite of frequent irrigation. To render his condition more comfortable, the patient should regulate his fluids, avoid alcohol, tea, coffee, or highly spiced foods, and anticipate the urgent desire to micturate. Owing to spasm occurring simultaneously with the desire to micturate, the bladder was often imperfectly emptied, but if the patient resumed micturition some five or ten minutes afterwards more urine could be passed owing to the spasm having lessened, and the process might, with advantage, be again repeated. This might be termed "divided micturition," and was distinctly helpful because it gave longer periods of sleep at night. The influence of spasm in causing difficulty of starting the act of micturition was shown by the fact that morphia gr. 1/6 and atropine gr. 1/180 would get over this difficulty for 24 hours.

In preparing cases of chronic uræmia for operation, continued the President, the tied-in catheter was preferable to regular catheterisation. Suprapubic cystotomy should be reserved for the rare cases which failed to improve with the in-dwelling catheter. Sepsis, in all cases where an in-dwelling catheter was used, was controlled by washing out the bladder daily with permanganate of potash or nitrate of silver. Evidence of the superiority of the tied-in catheter over catheterisation was shown in two cases in which the blood-urea fell from 146 to 40 mg. and 102 to 42 mg. per 100 c.cm. respectively. The President added to the technique of suprapubic prostatectomy—the operation most often performed in this country—by stretching or cutting the posterior lip of the septum between the cavity vacated by the prostate and the bladder; this, he said, obviated a common complication—namely, the formation of a diaphragm between the cavities. Enucleation could be easily done with the gloved finger. If packing was necessary, he advocated the use of an aseptic marine sponge in lieu of gauze. The Pilcher bag tended, in his experience, to stretch the external sphincter unduly. Slight incontinence had persisted to a mild degree in one case following its use. Referring briefly to deep X ray therapy, still in its experimental stage, he said that while he had seen some relief from this method his experience was limited.

The most difficult problem to be encountered in the after-treatment of enlarged prostate, said the President in conclusion, was that of sepsis. Irrigation, which had been carried out successfully in many cases, had got rid of the sloughs and cleansed the bladder, but it had sometimes been the means of lighting up infection. Any interference with the suprapubic wound was very dangerous. Its closure was often attended with a rigor, and at such a time irrigation was fraught with risk. Infection of the perivesical space was less likely to occur if care was taken to avoid undue opening of the space of Retzius. Should infection occur, adequate drainage ought to be provided.

Discussion.

Mr. R. C. B. MAUNSELL thought that the most anxious time in prostate cases was when the surgeon did not want to operate on them, when the patients came with symptoms of early prostatic disease. It was hard to know how long these cases could safely be left without operation. What percentage of risk was there of what seemed to be a simple enlargement becoming malignant? He had not got such good results from the use of an in-dwelling catheter as he had from suprapubic drainage, and he thought that the latter was the better method of preparing the patient for operation, as it made removal safer and reduced the bleeding. Also, some patients who had had an in-dwelling catheter, refused to have it taken out, and were inclined to refuse to be operated on, even though the surgeon might have made up his mind that an operation was necessary. If suprapubic drainage was employed, he did not think it likely that patients would refuse operation. He had found that the best thing in prostatic treatment was washing out. If washing out was done regularly in 12 or 14 days after operation there would be no sloughs, and in from 14 to 21 days the wound would be healed up. Washing out should be done every third day after operation. He personally used 1 in 10,000 silver nitrate.

Mr. L. G. GUNN expressed disapproval of the two-stage operation, which he would never perform. He just used a catheter as required. He had had a great deal of experience of X ray treatment, and thought it was beneficial when the gland was of the soft adenomatous type. In his experience very few cases of this type had had to be operated on after X ray treatment. If, however, the gland was smallish and fibrous, he did not think that X rays were efficacious at all. He had not had much experience of deep X ray therapy, but had seen two cases in which it had caused stricture of the ureters. It did not matter, he thought, how much fluid the patient took; it depended more on nervousness than on the intake of fluid what amount of urine was passed. A gloved finger was not, he considered, an advantage to the surgeon, and was a disadvantage to the patient. As regards the question of sloughing after operation and washing out the bladder, he thought that it depended on whether it had been necessary to use much force in taking out the prostate. He very seldom irrigated, but gave large doses of urotropin. Once a patient began to pass water himself washing out was unnecessary. He took out the gauze packing at the end of the 48 hours.

Mr. SETON PRINGLE had found that in nine cases out of ten renal function was deficient when the patient came to him, and some method of preparation for operation was necessary. He personally did suprapubic cystoscopy and he did not use the in-dwelling catheter. Some patients suffered from incontinence for about eight days after the tube was removed. After operation he put in a large drainage-tube which was taken out after two days, a small tube being inserted in the bladder. This was left in for about ten days, and then removed, and the patient was encouraged to pass water. He hardly ever irrigated. It was important, he thought, to remember that the openings of the ureters were patent, and that distension of the bladder after operation might quite easily force infection up into the ureters. He had had no fatalities from deep X ray therapy, and some cases had done very well after the treatment, but it was, of course, still in the experimental stage.

Mr. J. L. KEEGAN had found the use of the self-retaining catheter before operation most successful. If the bladder was thoroughly exposed it was quite easy to enucleate the prostate with a gloved finger.

Mr. D. KENNEDY said he had wondered, when the operation was carried out on a healthy bladder, where the sepsis came from. He had found that in all cases sepsis after the operation came from the suprapubic wound. This he thought was due either to bad operative treatment or to bad nursing. He always tried in these cases to have a special nurse, so that the dressings might be changed frequently, as he thought that if the abdominal wound was kept thoroughly clean there would be little or no sepsis and no sloughing. Once decomposed urine could be smelt there was a danger of sepsis. The important thing was to keep the abdominal wound aseptic. After operation he gave urotropin, and changed the dressing every two hours.

Mr. R. A. STONEY asked if the President had used a spinal anæsthetic in any cases. He himself had used one several times, and had been very pleased with the result. It seemed to lessen the tendency to bleeding, and caused perfect relaxation of the abdominal muscles, thus making it much easier to work inside the bladder. It also rendered convalescence quicker.

Mr. H. STOKES thought that there were certain patients who suffered from retention, and on whom it was not possible to operate, who, nevertheless, recovered and led perfectly happy lives. He mentioned two patients of his who, after catheterisation for three weeks, got all right, and now passed urine without difficulty.

Mr. V. J. MCALLISTER said that in some cases drainage by catheter was unsuitable. Where there were indications for a two-stage operation it was necessary to fall back on preliminary cystotomy. In the majority of cases, he thought, preliminary treatment was needed. He asked the President what percentage of cases might be classified as good risks, bad risks, and fair risks. He himself considered that about 40 per cent. might be classified as good risks, and the remainder divided between bad risks and fair risks. He had recently been trying the creatinin test and the phenolphthalein test, and though he could not make up his mind which was the better, he thought that the creatinin was the more reliable of the two. If the blood-urea was more than 60 mg. per 100 c.cm. he thought that operation for removal of the prostate should not be undertaken. He had often found that patients were more upset by the preliminary cystotomy than they were by the actual prostatectomy. When the patient seemed ill he thought that it was better to empty the bladder for a few days by continuous or by intermittent drainage before preliminary cystotomy. Regarding the perineal operation, he said that there was a danger of injuring the rectum, and of getting a certain amount of incontinence afterwards. He also had found spinal anæsthesia good. He asked what should be regarded as a fair mortality. He personally thought that if 60 per cent. of good results were obtained, and if 75 per cent. were relieved, that surgeons would be doing well.

The President's Reply.

The President said that he had had very few cases in which, with a long history of prostatic disease, malignancy had occurred. He believed that in the large majority of malignant cases the condition was malignant from the beginning. He very seldom took more than three minutes to do a prostatectomy, and he could do the operation much quicker if he had an abdomen which had not been interfered with in any way. He could not agree that if the operation was done with a gloved finger there would be more sloughing; he thought that having a gloved finger had several advantages over performing the operation with a bared finger. He sometimes washed out

through the urethra and sometimes through the suprapubic wound. Treatment by X rays was certainly more effective when the adenoma was soft. He had heard of some cases in which sclerosis of the ureters had occurred after X ray treatment, and this, of course, was a terrible disaster. He thought that packing with gauze often defeated its own end. He had found that no matter what precautions were taken the wound would slough. Even with every care it was impossible to avoid wounds becoming septic, and he thought that a bladder which retained urine could never be rendered aseptic, even after operation. He had had a mortality of 7·4 per cent. In four London hospitals he believed that the mortality was about 15 per cent. As an anæsthetic he thought that gas and oxygen was the best of all in these cases; he never used ether, and did not care for chloroform. It was difficult to say what the percentage of fair risks was, as a great deal depended on the treatment that was given. The results of prostatectomy were good. The test which gave the best results was, in his opinion, the estimation of blood-urea considered in relation to the patient's appearance. Cystotomy had a definite mortality attached to it.

JAMES MACKENZIE INSTITUTE FOR CLINICAL RESEARCH.

ON Nov. 29th Dr. EDMUND SPRIGGS read a paper on

Early Symptoms of Cancer of the Stomach.

He said that study of the early symptoms in a series of patients showed that the onset of the disease was appreciable in most cases. In two-thirds of them the symptoms had dated back more than nine months, and on the average an interval of a year or more had elapsed before a full investigation was made. An analysis of the symptoms in order of frequency, and of the order in which they arose, showed that the most important early symptoms were fullness and discomfort or pain, not severe or continuous, but recurring persistently, and arising in a middle-aged or elderly person. The next in order of frequency and importance were lack of appetite, dislike of food, or nausea, with resulting loss of weight. Hæmorrhage might be the first symptom. The pain or discomfort was often relieved by food in cancer of the pylorus and of the body of the stomach. Of the cardinal symptoms of cancer wasting and tumour were late results, and pain was so variable that no security could be assumed from its absence. Anæmia was usual, though, in exceptional cases, the blood might be normal until shortly before death. When cancer arose in the subject of ulcer or other forms of dyspepsia there was often a recognisable change in the symptoms. The earliest objective sign of cancer was probably local arrest of the wave in the stomach as shown by X rays. This was demonstrated by the superposition of serial films taken at such an angle that the lesion was in profile, and the sign was common to cancer, ulcer and fixation by adhesions. Cancer was suggested by a filling defect, or much induration at the edge of an ulcer, as shown by bending over of the shadow. The tests for achylia and occult blood were of great value.

If there was radiological and clinical suspicions of cancer, said Dr. Spriggs, the risk of operation to make sure was much smaller than the risk of watching the case. It was wrong to treat indigestion for any length of time in a middle-aged person without taking steps to exclude cancer. Resection of the pylorus or the body of the stomach, if undertaken at an early stage, could be performed successfully. The fight against cancer was a fight for early diagnosis. If the delay between the onset of symptoms and investigation could be avoided life could be saved in a great proportion of cases. Further progress depended at present upon the profession and the public becoming alive to the fact that earlier diagnosis could and should be made.

Reviews and Notices of Books.

BACTERIOLOGY AND SURGERY OF CHRONIC ARTHRITIS AND RHEUMATISM.

By H. WARREN CROWE, D.M., B.Ch. Oxf., M.R.C.S., L.R.C.P. London: Humphrey Milford, Oxford University Press 1927. Pp. 197. 30*s*.

THIS book, which is essentially original and personal, consists of four main parts: (1) a plea that osteo-arthritis is the result of chronic infection with streptococci, and the presentation of certain evidence for this; (2) the thesis that rheumatoid arthritis is a chronic articular infection with a variety of staphylococcus; (3) a chapter on the use of vaccines in these conditions, with a résumé of their surgical treatment, contributed by Dr. H. Frankling; (4) an essay upon the classification of streptococci. The result is somewhat incoherent, and is made to appear more so by an appendix upon the daily weight chart as a guide to tuberculin, which hardly seems relevant.

Dr. Crowe finds evidence for streptococci as the cause of osteo-arthritis and non-articular rheumatism in three directions—animal experiment, focal infection, and serological observations. "Such evidence as is afforded by the successful result of treatment is not," he writes, "here invoked. It is always suspect." Nevertheless he frequently makes references to treatment to support his argument. The evidence from animal experiment is unconvincing. As regards focal infections, especially root infections of teeth, the evidence as to their existence is, of course, overwhelming, but the critical link between these and the arthritic conditions is as weak as ever. Dr. Crowe devotes a chapter to the consideration of a book by Dr. Weston A. Price upon similar subjects; but he remarks that "the only part of Dr. Weston Price's work which up to now has fallen within my particular experience . . . is the bacteriology. This, I think, is open to a great deal of criticism," and he subjects the work to destructive analysis. It is difficult to follow Dr. Crowe here, for he stresses repeatedly the number and variety of types of streptococci which may be isolated from the roots of infected teeth, but does not indicate precisely his own position with regard to their ætiological importance. We gather that on the whole he thinks any or all of them may be the cause of the osteo-arthritis, in which case classification rather loses its importance in this respect.

Rheumatoid arthritis is claimed to be due to staphylococci, either to a yellow chromogenic variety or to the *Micrococcus deformans* of the author, which is to be distinguished from the ordinary *Staphylococcus epidermidis albus* by its lesser activity in clotting milk and a slight morphological difference in colony form. These cocci he finds in the scurf and urine of his cases and, in four instances, he has isolated those of the second type from joints. In the section dealing with streptococcal classification the author puts forward an entirely new basis, depending upon the appearances of colonies growing on a specially prepared "chocolate" medium. He defines 27 major groups, each with a number of described or yet to be described constituents, based upon characters which he tells us are not constant in subculture. Time will show if this classification has practical value; if it has bacteriologists must needs feel grateful, if chastened.

Dr. Crowe is to be congratulated upon the excellence of his photographs and of the colour process reproductions.

A TREATISE ON ORTHOPÆDIC SURGERY.

Eighth edition. By ROYAL WHITMAN, M.D., M.R.C.S., F.A.C.S., Surgeon to the Hospital for the Ruptured and Crippled, New York. London: Henry Kimpton. 1927. With 954 engravings. Pp. 1061+xii. 45*s*.

THE short intervals between the appearances of successive additions of Dr. Royal Whitman's standard text-book provide eloquent testimony to the popularity

of the work and to the steady demand for it among English-speaking practitioners. Only three years have passed since the seventh edition appeared, which succeeded the sixth after five years. The greater part of the book remains unchanged, but there are nearly seventy more pages and over seventy more illustrations. The greater part of the new matter consists of descriptions and illustrations of operations which have been introduced since the publication of the seventh edition, but besides this there are new paragraphs on myositis ossificans, fracture of the carpal bones, Kienbock's disease, and what Prof. F. W. Wood Jones has called "trick movements" in paralysed limbs. The section on collateral orthopædic surgery remains as in the last edition, with the addition of quotations from Kovac describing the use of physiotherapeutic measures, including various forms of light and heat. Such changes as have been made in the book increase its value.

APPLIED ANATOMY.

Seventh edition. By GWILYM G. DAVIS, M.D., late Professor of Orthopædic Surgery and Associate Professor of Applied Anatomy in the University of Pennsylvania. Revised by GEORGE P. MÜLLER, M.D., Professor of Clinical Surgery in the University of Pennsylvania. London: J. B. Lippincott Company. Pp. 638. 42*s*.

IN this edition of the late Dr. Davis's well-known work the original plan has been retained though the book has been subjected to a thorough revision. Most of the additions have been made in the descriptions of modern surgical procedure, though much new anatomical matter has been introduced. The 350 illustrations by Mr. Erwin F. Faber are uniformly good, and the volume as a whole can be thoroughly recommended.

OPHTHALMOLOGY.

An Introductory Course in Ophthalmic Optics. By ALFRED COWAN, M.D., Assistant Professor of Ophthalmology in the Graduate School of Medicine, Pennsylvania. Philadelphia: F. A. Davis Company. 1927. With 121 illustrations. Pp. 262. 15*s*.

THIS book is meant to convey to the student a good working knowledge of ophthalmic optics without demanding more than an elementary knowledge of mathematics. The laws of refraction, the properties of lenses, and the dioptric system of the eye are the subjects of the earlier chapters. There follow sections on the refractive conditions usually found and a concluding chapter deals with the use of the ophthalmoscope and retinoscope. Only simple typical cases are given. The book will be found useful by those for whom it is intended.

Ophthalmoscopy, Retinoscopy, and Refraction. Second edition, revised and enlarged by W. A. FISHER, M.D., F.A.C.S., Professor of Ophthalmology, Chicago Eye, Ear, Nose and Throat College. Same publishers. 1927. With 260 illustrations, including 48 coloured plates. Pp. 291. 16*s*.

THIS book is written with the avowed object of enabling the general practitioner to correct the common errors of refraction and to become proficient in the use of the ophthalmoscope. The bulk of the book is elementary but a new chapter by R. von der Heydt has been added to the present edition touching on the newer methods of refinement in ophthalmic diagnosis. These methods include the red-free light of Vogt, the Gullstrand binocular ophthalmoscope and microscopy of the living eye by slit-lamp illumination. We have no fault to find with the information given in the book so far as it goes, but it does not go very far. The whole subject of squint, for instance, is omitted. The matter included is, moreover, available in many ophthalmic text-books of modest dimensions. Perhaps the best part of the book is the inclusion of 24 plates of typical ophthalmoscopic appearances which, it is suggested, should be studied by means of an artificial schematic eye. Why these plates should all be printed in duplicate is not clear. Since a second edition has been called for, the demand for such a work as this must be considerable. It fulfils the purpose for which it has been written adequately; but it should not be forgotten that anyone who sets out to prescribe glasses for simple cases without having a sound working knowledge of the diseases of the eye as a whole runs grave risks.

MORBID HISTOLOGY.

Atlas der Histotopographie gesunder und erkrankter Organe. Von Dr. ERWEN CHRISTELLER, Direktor der pathologisch-anatomischen Abteilung des städtishen Rudolf Virchow-Krankenhauses in Berlin. Leipzig: Georg Thieme. 1927. With 182 colour photographs. Pp. 89. M. 90.

THE assumption that morbid histology has served its purpose and no longer plays an active part in pathology is inexplicable to those who realise the true value of the subject. A knowledge of structure, both normal and abnormal, must be the basis of pathology, and, after all, the microscope only enables us to appreciate the finer details of structure which we cannot distinguish with the naked eye. It would be more reasonable to divide doctors into those who wear spectacles and those who do not, than it is to recognise some who can use a microscope and some who cannot.

Dr. Christeller's atlas serves most admirably to bridge the gap between those who are satisfied with their unaided vision and those who like to see a little more. It consists of nearly 200 reproductions in colour of stained sections of whole organs or masses of tissue—the magnification of the majority of the sections is about 1·5, though some are little higher. The figures demonstrate the anatomical effects of various lesions in a way which neither the naked eye specimen nor the ordinary microscopic section can possibly do; and their value is greatly enhanced by the clear and brief descriptions which accompany them. The book is admirably got up, and though the price will put it beyond the reach of most students, it should find a place in the library of every teaching institution.

A TEXT-BOOK OF HISTOLOGY.

Fourth edition. By HARVEY ERNEST JORDAN, A.M., Ph.D., Professor of Histology and Embryology, University of Virginia. London and New York: D. Appleton and Co. 1927. Pp. 857. 25*s*.

FEW alterations have been made in the preparation of the fourth edition of this text-book. The most notable addition consists of a short account of the reticulo-endothelial system, but evidently reluctance to disturb the setting of the volume has caused this section to be unduly condensed. Other additions, of which there are about 12 in number, are mostly in the form of footnotes. In the chapter on blood the author has adopted the simpler term monocytes to embrace the large mononuclears and transitionals of the older terminology. Amongst the illustrations a few changes have been made with good effect. One photomicrograph of the older editions has been replaced by a drawing; others still demand critical attention.

In the preparation of his text-book Prof. Jordan has kept foremost in his mind the needs of advanced medical students, and he has produced a work of great academic value. The study of development, function, and the interrelationship of tissues and organs is applied in such a way as to impress clearly on the mind of the reader the most important peculiarities of histological structure. One need of the average medical student has, however, not been

taken into much account—the need for brevity. The time set aside for any subject in the medical curriculum is short; the fact that most modern text-books are large works lays a heavy burden of responsibility on the teacher, for the student cannot without help discover the essentials of any subject.

This book is admirably suited to the advanced science student and to the laboratory worker.

RONTGEN TOPOGRAPHY.

An X Ray Atlas of the Normal and Abnormal Structures of the Body. Second edition, revised and enlarged. By ARCHIBALD MCKENDRICK, F.R.C.S. Edin., D.P.H., F.R.S.E., and CHARLES R. WHITTAKER, F.R.C.S. Edin., F.R.S.E. Edinburgh: E. and S. Livingstone. 1927. With 448 figures. Pp. 256. 30*s.*

EVEN those who are prejudiced against atlases, on the ground that they seem to infer that radiology can be learned by the study of a series of pictures, must be impressed with the value of this volume to those who have not the rich experience that is enshrined therein. The atlas in its revised form has been enhanced by the addition of 60 illustrations. We still find conspicuous gaps, as, for instance, in the small range of illustrations of thoracic and œsophageal conditions. In the first edition there was an appendix of nearly 30 miscellaneous radiographs. This arrangement has not been altered; yet there are very few of these illustrations that could not have been redistributed into their appropriate sections. The Basle nomenclature is used throughout—this is unfortunate, since this drastic, disturbing break in traditional nomenclature has already been largely abandoned.

The high level of publishing art which was so strong a feature in the first edition is fully maintained, and the publishers are again to be congratulated on the very excellent way in which the volume is produced.

PARTURITION IN ANIMALS.

Biologie und Pathologie der Schwangerschaft und Geburt bei den Haussäugetieren. By Prof. Dr. med. vet. KARL KELLER, Veterinary High School, Vienna. Berlin and Vienna: Urban und Schwarzenberg. 1927. Pp. 815–966. M.8.

THIS treatise, which forms the third part of Volume VIII. of the encyclopædic *Biologie und Pathologie des Weibes*, edited by J. Hakban and L. Seitz, is an attempt to show that the veterinary clinic may furnish many observations and experiences useful to gynæcologists. Author and editors share the view that in these days it will be to the advantage of human and animal medicine if as many bridges as possible are built between them. The field of animal medicine is briefly surveyed, the species dealt with including the mare, cow, goat, ewe, sow, bitch, and cat. The bibliography is one-sided. Only two British workers are referred to, and the work of Stockman on abortion (p. 876) is erroneously attributed to America. The illustrations, of which there are 62, are excellent, especially the coloured plate showing the lesions caused by *B. abortus* Bang.

CHILD PSYCHOLOGY.

Everyday Problems of the Everyday Child. By DOUGLAS A. THOM, M.D., Instructor in Psychiatry, Harvard Medical School. London and New York: D. Appleton and Co. 1927. Pp. 350. 10*s.* 6*d.*

THE number of volumes which have appeared during the last few years on various aspects of child psychology has been so large as to suggest a state of over-production in this branch of literature. This book, however, compares so advantageously with a great number of its kind that its publication is fully justified. It has the great merit of maintaining a scientific and unemotional outlook, not too closely adherent to any particular school of thought. Controversial questions, such as the relative preponderance of hereditary and environmental factors, are presented in a fair and well-balanced manner, while the greater part of the book is devoted to accounts of individual cases drawn from the author's large experience, and to an extremely lucid and practical discussion of the problems which they exemplify. The importance of keeping constantly in mind the physical condition of the child who exhibits disturbances of behaviour receives more recognition than in many other works of this kind. Practitioners, as well as parents and teachers, will find much in this book which will assist them in the prevention and treatment of neurosis in childhood and in the management of the "difficult" child.

SEX AND REPRESSION IN SAVAGE SOCIETY.

By BRONISLAW MALINOWSKI, D.Sc. London: Kegan Paul. 1927. Pp. 285. 10*s.* 6*d.*

Dr. Malinowski has studied at first hand savage communities in the Pacific, and now examines those theories of psycho-analysis, built upon the discovery of the Œdipus complex, which assume that nuclear complex to be universal and responsible for the development of myth and fairy tale, of savage customs, and the forms of social organisation as well as the achievements of material culture. He takes the view that the complex is not the cause of sociological structure but the effect, and uses his studies of a predominantly matrilineal system, as existing among the Trobriand Islanders, to demonstrate that in its presence the complex fails to show itself in characteristic form. The Œdipus complex depends, we learn from the author, upon the incorporation in the father of the two functions of tender friend and rigid guardian of law. Among the Trobrianders these functions are separated; the father is only a friend of the family, whilst authority is represented by the mother's brother, so that the child is not called upon to harmonise the two functions in one person. Among them, too, sex repression in the education of the young—emphasised in many primitive people as well as in our own civilisation—is entirely absent. To this fact he ascribes the absence of perversions and the open and accessible nature of the natives of the Trobriands when compared with those of neighbouring islands. There is, however, a powerful taboo set up between sister and brother, and he shows that their traditions and myths are built up on this taboo.

Dr. Malinowski's arguments against Freud's hypotheses of the primitive horde and totemic parricide as the origins of the Œdipus complex are cogent, and show no trace of any aim other than the search for scientific truth. He more than once makes a plea against, on the one side, the lack of collaboration of psycho-analysts with other workers and, on the other, the ignorance of specialists concerning what is without doubt an important contribution to psychology. Shand's theory of sentiments, for example, stands in a very close relation to psycho-analysis, but the nature of the reception accorded to the new teaching has excluded an examination of the relationship.

The book has its practical interest for those who approach the psychoneuroses as difficulties in social or family adaptation. How anthropological and clinical studies converge is well expressed by the author when he writes (p. 276): "And many maladjustments within the mind and in society can be traced back to the faulty cultural mechanism by which sexuality is suppressed and regulated or by which authority is imposed." The uninformed reader might perhaps receive the impression that the hypothesis of the primitive horde is an integral part of psycho-analytical theory instead of a deduction from observations that are accepted by many people, including Dr. Malinowski. This was not the intention of the author, but it must be mentioned because the book, whilst thoroughly scientific in the handling of its subject, makes otherwise no demands upon previous knowledge of more than a general kind.

THE LANCET.

LONDON: SATURDAY, DECEMBER 31, 1927.

SIR DAWSON WILLIAMS.

LAST week it was announced that the Council of the British Medical Association had received from Sir DAWSON WILLIAMS his resignation of the editorship of the *British Medical Journal*. The resignation will take effect in January, 1928, on the date at which Sir DAWSON will have completed his thirtieth year as editor, while he had been connected previously with the editorial department of the paper for some 17 years, during most of which time he held the post of assistant editor. We can well understand the deep regret with which the body of the Association generally, as well as every one in its official departments, will have learned the announcement. We share the regret, and the more completely because, in the conduct of *The Lancet*, the relations between this paper and Sir DAWSON WILLIAMS, throughout his editorship of the *British Medical Journal*, have been necessarily of an intimate character, and thus we know how inestimable in value his life-work has been, not only to the Association but to the cause of medicine generally during his long tenure of the editorial chair. We are in a position of peculiar ability to gauge the statesmanship, the patience, and the courage displayed by him in many positions of difficulty and delicacy throughout a period of revolutionary changes in our science, our art, and our everyday machinery, every one of which changes has been reflected in the labours of the British Medical Association; and we are expressing the opinion of all when we point to him not only as the mainstay of the Association throughout his extended term of service but as a great champion of our profession. For in the British Medical Association, as must happen in all corporations, presidents and councils arrive, discharge their functions, and are succeeded in due course by others; but this long official roll has enjoyed for 30 years the guidance of one whose views have never declined from their high standard, while his experience, as it was perfected year by year, has been at the disposal of the Association for the profit of all.

The post vacated by Sir DAWSON WILLIAMS has been offered to and accepted by Dr. NORMAN GERALD HORNER, who has been for 11 years assistant editor of the *British Medical Journal*, and who, we are glad to remember, served *The Lancet* previously for some time in a similar capacity. We wish Dr. HORNER all success in bearing his burden of responsibility, and have every reason for knowing that the wish will be fulfilled.

THE PREVENTION OF PARATYPHOID.

ENTERIC fever of the old type with a high fatality seems to have almost disappeared. Outbreaks of paratyphoid, however, are fairly often reported, and two recent epidemics, both traced to milk, give occasion for thought. In West Hertfordshire there were about 150 cases, mostly in the first half of November. The dairy involved was supplied by nine farms, at one of which a child was found with paratyphoid, and several of the dairyman's staff afterwards became infected. In the Tenterden (Kent) outbreak there were some 60 cases, mostly between August 9th and Sept. 26th. The dairy was supplied by six farms, at one of which the farmer, his wife, and both the children were found to have had attacks of paratyphoid. The source of the illnesses of this family was thought to be the polluted well of the farm. Fortunately there were no fatal cases either in Hertfordshire or Kent, though some of the patients were seriously ill with all the classical symptoms of enteric fever, except hæmorrhage and perforation. Owing to the long incubation period and insidious onset of the enteric fevers, most of the damage may be done before the milk-borne outbreak is discovered, although the number of cases may be restricted by stoppage or pasteurisation of the milk, hospitalisation of patients, and inoculation of contacts.

Prevention consists in securing safe water-supplies for all dairy farms, and the handling of milk by persons in good health and of scrupulously clean habits. Dr. W. G. SAVAGE has recently shown how inefficiently the available water-supply of a county is sometimes distributed amongst the local authorities. But however well the water-supply is pooled, there will always be outlying farms faced with a difficulty in getting the large quantity needed for a dairy. Again, year by year Colonel HERBERT JONES, for long medical officer of health for the Herefordshire combined district, has pointed out in his annual reports how apathetic district councils and occupiers are in securing the protection of dip wells, surface wells, and springs, and how easily this protection may usually be afforded. The problem may be narrowed down to the keeping of all human excreta from the water-supply, and to the prevention of specifically infected excreta reaching milk and food by way of the fingers or clothes of those whose business it is to handle milk and food. As regards the purity of water, too much reliance is placed on occasional analyses, chemical or bacterial; what ought to be known is the history and circumstances of the water, and if a well is insufficiently protected from surface pollution it should be condemned on sight, in spite of any analysis. As an example of the unreliability of analysis alone it may be noted that the water of Watermill Farm, which was thought to be the origin of the Tenterden outbreak, was reported in May to be of "fair organic quality only," whereas in August, during the outbreak, it was "highly polluted" and "quite unsuitable for drinking purposes." As regards those employed at dairies, it is probably impossible to exclude from work all who have slight ailments. The farmer at Watermill was said to have been indisposed for two weeks, but for all that period except two days he had milked the cows and carried on. Dr. HYSLOP THOMSON writes that quite a number of carriers in the West Hertfordshire outbreak gave very vague histories of illness, and that one or two said quite definitely that they had never been ill at all. Obviously we have no knowledge to enable us to exclude such ambulant patients or carriers from handling milk or foodstuffs, and we must therefore attempt to secure scrupulous personal cleanliness on the part of all food handlers. It has been well said that the Hindu custom of washing the anus after defæcation is an excellent one. With Western appliances it is easy to improvise an effective sponge for the purpose by holding the toilet paper in the clean flush water, and the use of such a sponge incidentally prevents irritation, pruritus, cracks, and other circum-anal trouble. It should always be followed, of course, by very careful washing of the hands, and it is much more important that children should be taught to

wash their hands after attending to the wants of nature than to wash them before meals, often as a mere matter of form. With cleanly habits, a dairy farm worker would cease to be a danger, even if he were a typhoid carrier.

Milk-borne epidemics of scarlet fever and other diseases, to which we made brief reference in our issue of Dec. 3rd (p. 1194), generally arise from missed cases, and the measure to be adopted against them is separation of the milk business from the life of the household with the exclusion of non-immune children from the dairy. Possibly preventive inoculation will soon become the rule for the family and workers on dairy farms, just as it is now the rule for the staff of isolation hospitals.

RADIUM TREATMENT OF CANCER.

SURGERY has been slow to admit radium into its armoury for combating the ravages of cancer, but year by year the evidence grows that radium is of real utility. It is our belief that this evidence will accumulate at an ever-increasing rate, and that it will not be many years before radium is recognised to be the best form of treatment for some forms of cancer, with the result that some operations now frequently practised will fall almost into disuse. The supply of radium available in this country has never been large, and those who have used it in a scientific manner have been few, but the result of their work is beginning to make itself felt. The Medical Research Council has now published its fifth report[1] on this subject, giving a summary of the work done at research centres during 1926. It is, perhaps, ungrateful to complain that the report has appeared almost a year after the period to which it refers, so that it is already by so much out of date. But if our predictions are true, and radium is to become a tried and trusted weapon instead of an experimental one, the interests of sufferers from cancer will be best served by a more prompt publication of evidence. The report is couched, as usual, in cold, considered terms, so that no distrust is aroused in our minds by enthusiasm or partizanship. We gain the impression that results are improving as experience grows, and the chief interest will be aroused by the reports from the research centres at St. Bartholomew's and the Middlesex Hospitals. Some of the results at St. Bartholomew's were described earlier in the year in the *Hospital Reports* for 1927. These have already been the subject of comment in our columns,[2] and we have drawn attention to the remarkable degree of success attained in treating carcinoma of the breast, cervix, larynx, and tongue. A private demonstration of patients treated by radium held recently at this hospital has further impressed us very favourably. The Medical Research Council's report points out that in time valuable evidence as to the results of different methods will be obtained. In treating carcinoma of the breast the Middlesex Hospital tends to use a large dose of radium for a short time, whereas at St. Bartholomew's a widely distributed smaller dose is used for a much longer time. Much can be said for the second method, as the cancer cell is believed to be more vulnerable at some stages of its life-history than at others, and the longer time will cover more of these stages than the shorter. The report also gives interesting details of the method used at St. Bartholomew's for treating intrinsic carcinoma of the larynx. By means of windows cut in the thyroid cartilage, the radium is placed in close proximity to the growth and is allowed to remain there for several days, with very satisfactory results. That part of the Council's report which deals with the treatment of carcinoma of the cervix is reinforced by the article by Dr. HELEN CHAMBERS printed in our present issue. Dr. CHAMBERS claims that upon the evidence now available "it has been conclusively proved that for the large majority of patients suffering from cancer of the cervix modern radium treatment can completely replace surgery and give equally good and long-standing results." This claim is likely to give rise to some discussion. If it can be upheld, and the patients concerned are consulted as to which form of treatment they would prefer, radium or operation, there can be little doubt of their answers. Dr. CHAMBERS admits that a serious objection to radium therapy remains—namely, its failure to treat pelvic lymphatic glands. A similar difficulty, in the mediastinal glands, confronts those who would treat carcinoma of the breast. Even with carcinoma of the tongue and larynx where the lymphatic glands, being in the neck, are accessible, they have not proved easily amenable to radium. Operation, however, is confronted with the same limitations, and radium treatment need only give results as good as surgery to be preferred by both doctor and patient. We await further developments with the greatest interest.

[1] Special Report Series. No. 116. H.M. Stationery Office. 1927. Pp. 24. 1s.

[2] THE LANCET, Sept. 24th, 1927, p. 666.

Annotations.

"Ne quid nimis."

THE SCRIVENER.

A CORRESPONDENT voices the old but evergreen complaint of his time being so much occupied by filling in forms and writing certificates as to interfere with the treatment of his patients. It seems to us that much of his complaint is legitimate and that he describes a situation which is becoming ever more serious. It cannot really be in the public interest for the practitioner's time to be occupied to such an extent with describing what he has done, as to leave little time to do anything to describe. No doubt there is a substantial residue of clerical work inseparable from general practice. The keeping of records and the furnishing of certificates is part of the contract made by every insurance practitioner with the Commissioners, as also is the filling up of reports on insured persons suffering from tuberculosis. Such reports are required for the proper administration of insurance benefits. On the other hand, much of the demand on practitioners for reports and certificates has no real bearing upon the proper treatment of the case and as such is an unreasonable demand unless the patient is prepared to pay for the extra time involved. This sort of clerical work is essentially different from the keeping of records and the taking of clinical notes. The existence of a record of previous history and treatment facilitates the subsequent conduct of a case and curtails the time required for later consultations. Reports on cases sent to hospital and under dispensary supervision for tuberculosis are of importance alike to patient and practitioner. They imply, it is true, a tacit recognition that the practitioner has become a servant of the public, as well as the servant of his patients; but this can hardly be considered any longer in doubt. With regard to the clerical work of insurance practice two alternatives present themselves. Limiting the size of the panel would proportionately reduce the clerical work involved; to some extent no doubt the quality of panel work is in inverse ratio to the quantity, but a practitioner cannot afford to limit the number of his patients unless he can be assured of an adequate fee

for each case, and limitation of lists would have to be accompanied by a corresponding increase in the capitation fee. But the practitioner, and still more the group of practitioners, with large panel list, can afford to train clerks to take unnecessary writing off their hands. Clerical assistance for the school medical service is recognised as a matter of course, and the time is no doubt coming when clerical assistance in practice will become something of a profession in itself.

MEASUREMENT OF MENTAL CAPACITY.

IN any branch of science it is desirable, from time to time, to look back and to survey the advances so far achieved, and in the light of that survey and with some realisation of what is still lacking to anticipate the lines of future research. This is what Dr. Cyril Burt has done for psychology in the space of a short lecture entitled "The Measurement of Mental Capacities," delivered under the auspices of the Henderson Trust, founded nearly a century ago to promote phrenological science. Psychology goes back to Greece, but up to very recent times it was a purely abstract science, a discussion of mind in general, an introspective study, and singularly unpractical. The work of the early phrenologists—Gall, Spurzheim, and the Combes—may be regarded as an attempt to reach some practical method of mental measurement, but relied too largely upon physical traits as indices of mental. Modern psychology, by becoming experimental and statistical and studying mind in the concrete, making its proper study "not man but men," has, as Dr. Burt shows, made possible a much more accurate estimate of the mental differences of individuals. He presents a schema distinguishing intellectual from temperamental qualities, and among both of these, inborn from acquired, and general from specific capacities. So far progress has been mainly on the intellectual side, tests of general intelligence and of specific educational acquirements having reached some degree of reliability, though not finality. Recent research has largely dealt with the question of special inborn capacities, such as those of sense-perception, manual capacity, linguistic ability, retentive capacity; psychologists do not yet agree regarding the relative predominance of "general" and "specific" abilities, but Dr. Burt shows the possibility even now of a comparatively reliable examination scheme based on a good working hypothesis. Tests for the study of temperamental qualities are not yet, however, available, and reliance must still be placed on the method of skilled observation. In spite of imperfections, however, work of much practical value for education and industry has been achieved, and some new light thrown upon the problems of lunacy and mental deficiency, not to say of human nature in general. The medical practitioner has always been necessarily a psychologist, but he need no longer be a mere empiricist.

CARBON MONOXIDE IN BATHROOMS.

RECENT work[1] by J. B. S. Haldane on the effect of atmospheres containing various proportions of oxygen and carbon monoxide shows that the movements of the wax moth and the germination of cress seed are inhibited by carbon monoxide, which has some positive action over and above mere dilution of oxygen. By taking advantage of the fact that mammals can live on oxygen dissolved in their blood under high pressure even when almost all their hæmoglobin is combined with carbon monoxide (as was shown by Haldane in 1895) he has observed that with rats an excess of carbon monoxide quickly caused hyperpnœa and convulsions. This result could usually be countered and the animal's life preserved by the addition of oxygen and a lowering of the pressure. It is, Haldane considers, clear that carbon monoxide has a poisonous action on rats, apart from its combination with hæmoglobin. This action he associates with a CO-sensitive substance in the brain as well as in the muscles, as shown by Keilin. A specific toxic action on the brain may account for the curious disinclination to use obvious and easy means of escape which persons who have recovered from carbon monoxide poisoning almost invariably recall. This tendency adds a peculiar danger to any source of carbon monoxide in a place where a person is likely to be left alone and undisturbed for some time. The danger has been so repeatedly emphasised in coroners' courts that we would have thought it was now common knowledge. Inquests held in various parts of London within the last few weeks have shown that gas appliances of bad design or almost perfect ones used under unfavourable conditions, have been responsible for deaths by carbon monoxide poisoning. Ordinary coal-gas or carburetted water-gas mixture, when supplied through a sound system of service pipes to appliances which can be trusted in all circumstances to burn it completely is one of the safest and most convenient sources of heat. The vile and insistent smell of carburetted water-gas is an effective set-off to its high content of carbon monoxide. The real danger is the appliance in which the burning, or rather attempted burning, of any gaseous mixture containing carbon may lead to imperfect oxidation and formation of carbon monoxide. This danger, potentially ever present in such highly efficient water heating devices as geysers, can apparently never be overcome with certainty even by arrangements intended to lead the products of combustion outside the building—an absolutely necessary precaution. The very small bathrooms now provided in flats certainly add to the danger. This could be much reduced if people using geysers and water heaters for hot baths would (1) open the window a little at the top and leave the door wide open while the water is heating, (2) undress in their bedrooms and on entering the bathroom turn out the gas before starting to bathe, and (3) hang up on the door a notice to say "occupied" rather than bolt the door.

[1] Biochemical Journal, 1927, xxi., 1068.

ACUTE APPENDICITIS IN PREGNANCY.

Dr. R. A. Wilson, of Brooklyn, has recently[1] reported ten cases of pregnancy complicated by appendicitis in women aged from 21 to 34, who had been treated in the obstetrical and surgical services of the Methodist Episcopal Hospital since 1915. With one exception in which the attack was primary, a previous history of appendicitis was obtainable in all. In eight cases pregnancy appeared to have an injurious effect upon the appendicitis, marked exacerbation of which took place. Three cases perforated and one died. Only one patient, however, miscarried, although three required drainage. About 80 per cent. of the cases of appendicitis complicating pregnancy occur in the first six months, the disease being comparatively rare in the last bimester. Dr. Wilson is of opinion that appendicitis is commoner in the puerperium than is generally supposed, but that it is frequently overlooked at this time. The diagnosis of appendicitis becomes increasingly difficult after the first months of pregnancy, especially if uterine contractions are present. The leucocyte count is not of much assistance owing to the leucocytosis normally existing during pregnancy. The maternal prognosis is good if an early operation is performed, but perforation is followed by a mortality-rate of 50 per cent. In simple cases there is little risk of abortion, but if perforation occurs abortion takes place in about 50 per cent. The more advanced the pregnancy the greater the risks to mother and child. Apart from a greatly increased incidence of pelvic phlebitis, complications are not more varied or more serious than those found after other cases of appendicitis. Treatment will depend on the extent

[1] Surgery, Gynecology and Obstetrics, November, 1927.

to which the uterine wall is involved in the infective process. In the absence of peritonitis the appendix should be removed quickly and the uterus left undisturbed, but if perforation and peritonitis are present a choice must be made between a low section and a Porro operation. Dr. Wilson's personal experience should be read in the light of an analytical study of 405 operations for appendicitis associated with gestation, collected from English, French, and German literature sources by Dr. A. P. Heineck, of Chicago.[2] In 21 cases the pregnancy was ectopic and in 384 intra-uterine. The ages of the patients ranged from 15 to 46, and the maximal frequency of appendicitis which might occur at any age was during the second, third, and fourth months. 279 cases were acute and 91 chronic. In 35 cases, owing to the incompleteness of the reports, an exact classification could not be made. 373 patients recovered and 32 died, the commonest cause of death being diffuse peritonitis. In the 21 cases of ectopic pregnancy the products of conception and the appendix were removed at the same time. In 205 cases a living child was born, and in 11 no mention was made of the viability of the child. In 92 cases either abortion or miscarriage followed the operation. Premature labour almost always attended by death of the baby was recorded in 71 cases on the day of operation or from one day to four weeks later. Dr. Heineck has drawn up tables showing the importance of early operation from both the maternal and fœtal standpoint, and the various operative procedures and anæsthetics used. Most of the cases made an uneventful recovery.

BIRTH CONTROL CLINICS.

IN the annual report[3] for 1927 of the Walworth centre of the Society for the Provision of Birth Control Clinics is included a statistical summary of the activities of the various clinics affiliated to the Society. Of these clinics, there are now nine, situated at Walworth, North Kensington, Wolverhampton, Cambridge, Manchester and Salford, East London, Glasgow, Oxford, and Birmingham. Up till August 1st, 1927, there had been seen at these clinics a total of 13,022 "new cases" and 17,228 "return cases." The doctors working at these clinics are not bound to adhere to any one contraceptive method, but the technique which finds most favour for normal women is a combination of an occlusive principle, a spermicidal principle, and a douche. This is the technique most approved by a medical committee that has recently reported on the question.[4] The occlusive device most used is the "Dutch cap," which is made in 16 sizes, ranging from 45 to 90 mm. in diameter. A cap is adjusted of such a size that while held firmly in place it causes no discomfort to the wearer. The spermicide now favoured is an ointment containing 1 per cent. lactic acid, which the woman is instructed to apply to the rim of the pessary before adjusting it. She is further told to douche herself with warm water on getting up in the morning after the pessary has been used. The process of adjusting a pessary of suitable size is one which calls for experience on the part of the examining physician, who, by the rules of the Society, must be present at all sessions. The rule in question runs as follows: The objects of the Society shall be "in the interests of social welfare and for the relief of poverty, to establish and support clinics in which instruction in the most satisfactory method of contraception will be given to married women in poor circumstances by registered medical practitioners (preferably women) assisted when necessary by qualified nurses. The medical practitioners shall be solely responsible for the treatment of patients, and the nurses shall act only under the instructions of the medical practitioners." The phrase "in the interests of social welfare and for the relief of poverty" is important because it implies that the Society aims at serving a purpose which is socially as well as medically useful. Thus, conditions of economic stress arising, for instance, out of housing or financial difficulties are taken by the Society as a justification for giving to a woman advice on birth control. The issue was brought to a head when a majority of the committee of the Aberdeen centre decided that no woman could be accepted as a patient unless she brought a recommendation from a medical practitioner. Medical grounds were regarded by this committee as the only ones on which advice on birth control should be given. Hence the Aberdeen centre has been erased from the roll of centres affiliated to the Society. It is clear that the term "medical grounds" is capable of interpretation in a narrow and in a broad sense. In the narrow sense it would approximately be restricted to such conditions as cardiac, venereal, renal, or hereditary diseases, tuberculosis, and pelvic abnormalities. But in a broad sense the phrase might be interpreted as including considerations of health involved in the proper spacing of all children born, the danger of using ill-fitting occlusive appliances without medical supervision, and the harmfulness of the practice of coitus interruptus which is the method of birth control resorted to by the great majority of those to whom other and better methods are not known. That these clinics fulfil a useful medical purpose few persons acquainted with their work will deny.[5] That they also perform a useful social purpose is shown by the letters of gratitude and thanks (some of which are published in the Walworth report) which the Society constantly receives from women who have benefited from its activities. These clinics, which are maintained entirely by voluntary subscription, welcome visits from medical men or women interested in the work.

THE FAMILY DOCTOR AS SPECIALIST.

TO-DAY the knowledge required by a family doctor is growing with every advance in medicine to an extent which makes it increasingly difficult for one brain to grasp more than the rudiments of the many subjects required of it. The result of this is a growing tendency to specialism even by doctors in general practice. In the Alexander Black memorial lecture[6] Dr. Charles E. Douglas discussed the opportunities for the family doctor as a specialist on certain lines in his own sphere which do not encroach on specialised work outside of it, yet are of great service to the community. He began by tracing the rise of the family doctor to the eminent position which he held about the middle of the last century, a position reflected in the literature of the time by such characters as Lydgate in "Middlemarch" and in life by such men as Dr. Francis Adams and Dr. Charles Hastings. He then went on to discuss the reasons for the decline in usefulness and status of the family doctor since that time. This Dr. Douglas attributes to three factors: the rise of antiseptic surgery, which has made it a vast specialty in itself; the growing tendency to collectivism, of which the public health laboratory and the fever hospital are examples; and lastly, the most directly causative factor, the national health insurance scheme. From the point of view of the community—which is naturally and properly the most dominating point of view—this scheme is, he says, as near an unmixed blessing as it can be. But, he adds, "a cumbersome form of certificate with regulations to enforce it . . . is the bugbear on the one hand; and on the other is the presence of a 'checking bureau' which is on the alert to insist upon economy in prescribing . . ." These two influences with the resulting complaints, exactions, fines, and humiliating experiences before panel committees or even medical service committees

[2] The Medical Times, December, 1927.
[3] Obtainable from the Walworth Women's Welfare Centre, 153A, East-street, Walworth.
[4] See THE LANCET, Dec. 17th, p. 1325.
[5] See, for example, Supplement for Medical Readers of the Annual Report of the North Kensington Women's Welfare Centre, 12, Telford-road, W. 11.
[6] Delivered before the Royal College of Physicians of Edinburgh, June 15th, 1927, Edin. Med. Jour., October, 1927.

cannot fail, Dr. Douglas thinks, to have a demoralising effect upon the panel doctor, who is the family doctor of the working classes and to degrade him in the eyes of the general public. The family doctor can, however, regain his lost status by becoming a specialist in his own domain. Most research is difficult for him because he is more concerned with its practical results than with its scientific aspect, and if he attempts it, owing to lack of material of one kind, he is liable to argue from insufficient data. In spite of these difficulties he can do special work in regions where no one else but he has access. He may study the beginnings of disease. In country districts he should practise urgent surgery so that he can operate on a case of laryngeal diphtheria, acute appendicitis, or strangulated hernia. He may take part in collective investigations, as was done 40 years ago when the communicability of phthisis, pneumonia, and chorea were examined by 6400 doctors. He may assist in the prevention of disease by promoting regular medical examination in health. Finally, he may exercise the "scientific imagination." One man's experiences as a family doctor of a group of cases is usually too small for him to use the inductive method of research, but speculative reasoning has led to advances in the science of medicine. Harvey, Jenner, Sir James Mackenzie, and Lister all used the deductive method, and there is still room for it to-day. Dr. Douglas concludes by emphasising the part played by the family doctor as a friend and advisor on matters outside the realm of medicine, where he is the nearest approach to father confessor that we in this time may see. He it is also who is curator of the truth that medicine has a body of its own and is not a mere bundle of specialties.

HEADACHE CURED BY THECAL INSUFFLATION.

PATIENTS complaining of headache and dizziness as a sequel to accident have been rather unwelcome patrons of most clinics. They are often living in hopes of financial compensation, and this fact, together with the absence of abnormal physical signs, may lead to an unmerited diagnosis of traumatic (or compensation) neurosis. In an article in the current number of *Surgery, Gynecology and Obstetrics* Dr. Wilder Penfield, of the Presbyterian Hospital, New York, records some remarkable cures in such cases by the insufflation of air into the subarachnoid space; his results in seven instances have been so consistently good that he regards the treatment as specific for this condition. The patients to whom it has been applied had all suffered from injury to the head, five of them had been rendered unconscious at the time of their accidents and fracture of the skull had been demonstrated in three. Headache and dizziness were their cardinal symptoms. The site of the headache either corresponded with the site of the blow or was frontal; pain was invariably localised and in most cases was situated near the site of the blow, with some tendency to radiate forward. Usually it was a dull pain—three patients described it as hammering—ordinarily it was made worse by lifting, blowing the nose, or stooping, but such aggravation was not invariable. The headache in cases of this kind is usually present every day, but may have diurnal variations, coming on shortly after rising and again in the late afternoon; most patients are unfavourably influenced by stormy weather and some by a warm day. The vertigo occurs in transient attacks each of which lasts for several minutes, and is not accompanied by nystagmus or any sense of rotation. As a result of air insufflation all the patients treated have been relieved of their headaches completely, all were enabled to resume their normal acitivity by day and to sleep soundly by night. Their ages varied from 4 to 65 years, and the interval between injury and treatment from four weeks to eight years. Air was injected into the lumbar theca, 5 c.cm. of air after withdrawal of each 5 c.cm. of cerebro-spinal fluid, while the patient lay on a tilted operating table in such a position that the highest portion of the head corresponded with the site of the headache. In such a position the air passes up over the convexity of the brain, and very little of it enters the ventricles. A total of 42 to 95 c.cm. of air was reached, a quantity sufficient completely to fill the cerebral arachnoid spaces and basal cisterns. After the injection the side of the head where the pain was habitually most severe was kept uppermost, and the top of the bed slightly raised by blocks. The immediate reactionary headache lasted from three to nine days, and with the absorption of the air the headache disappeared and did not return. Instructive radiograms of these cases are published with the paper. In some cases the "pneumographs" gave evidence of atrophy of the frontal convolutions; in three, air had escaped from the subarachnoid into the subdural space; in two a definite subarachnoid cyst was seen. The fact that a certain group of headache cases is apparently curable by a specific form of treatment makes it likely that they are caused by a common mechanism, and this mechanism, in Dr. Penfield's opinion, is some abnormality in the cerebral meninges.

THE PSYCHOLOGY OF ANTIVACCINATION.

UNDER the title "Should we be Vaccinated?" Mr. Bernhard J. Stern, instructor of sociology at Columbia University, has written a history of vaccination and the controversy concerning its efficacy and dangers.[1] He has a firm belief in its value and discusses why the controversy still exists 129 years after the appearance of Jenner's *Inquiry*. Within a year of this publication both advocacy and denunciation had become equally and extremely intemperate, each side accusing the other of being influenced by financial interests. By 1804 both parties were so far from an unprejudiced desire for truth that the title-page of Dr. Rowley's brochure, among 12 lines of abusive language, offered treatment for the beastly new diseases produced from cow-pox, whilst the Royal Jennerian Society angrily refused to institute experiments to determine whether there was a period to the preservative powers of vaccination. The chief motive attributed to the early opposition—a vested interest in inoculation—has long ceased to be operative, but it is probable that the virulence of the strife has left us a legacy, for we still meet the belief, freely inculcated in those days, that vaccination is a gigantic fraud deliberately perpetuated for the sake of gain. The estimation of the value, limitations, and possible dangers of vaccination against small-pox is now a commonplace of scientific medicine, and the field of preventive vaccination is so widened that what in Jenner's time was an isolated empirical observation now takes its place among a group of prophylactic measures. The opposition to vaccination, however, still retains the "all or none" quality of primitive behaviour and, like many emotional reactions, is supported by a wealth of argument which the person reacting honestly believes to be the logical foundation of his behaviour. An antivaccinator is generally an antivivisector, often a vegetarian, but he is ready to base his objection to vaccination upon arguments, statistical or individual, that have no relation to his other negativisms and are therefore not the true foundation upon which his objection rests. In this common tendency to produce reasons for beliefs already formed upon an emotional basis we find the explanation for the failure to settle some controversies by appeal to facts. If a belief depends upon an emotional state we can by arguments only convince a man against his will, and the proverb tells us what happens next. The granting of validity to a conscientious objection to vaccination has the advantage of meeting the objector upon his own ground; moreover, since emotion is directed against persons rather than against things—in this case, perhaps, against person-

[1] London and New York: Harpers, 1927: Pp. 146.

ifications of authority, medical or legislative—the emotion is allowed a chance of subsiding. The risk of allowing a part of the population to escape protection from small-pox may not be too great a price to pay if the result is to bring the vaccination controversy into that world of cold reason where two and two make four.

THE RED BLOOD CELLS IN MALARIA.

CHANGES in the red blood corpuscles, caused by the malarial parasites developing in them, are thought to be of practical importance because some of them are peculiar to particular kinds of plasmodium and differentiate the three morphological types of parasite. The common changes seen in malaria include enlargement and decolorisation, shrinkage, the "old gold" or brassy globules of Marchiafava and Celli, fragmentation, and agglutination. In 1899, however, Schüffner described the speckling which bears his name in the red cells invaded by the benign tertian parasites, and shortly afterwards Stephens and Christophers and later Maurer demonstrated in the cells attacked by the subtertian parasite special dots of a new kind and useful in differentiating the various kinds of parasite. Opinions about the specificity of Schüffner's dots are not entirely in agreement, but most observers think that they represent a characteristic and differential element. Stephens and Christophers believe that Maurer's dots are characteristic of subtertian malaria, and Maurer himself holds them to be a decisive phenomenon which differentiates the parasite "*Laverania malariæ*" and justifies a certain diagnosis. Recently Prof. Salvatore Pastore,[1] of the University of Rome, has endeavoured to settle the controversy as far as possible and has examined blood-films stained by the methods of Giemsa, Romanowsky, and Brug. He found Schüffner's dots in all stages of the development of *Plasmodium vivax*, but the corpuscles harbouring parasites which occupied only one-fourth of the cell showed them less often than corpuscles inhabited by growing forms and by adult schizonts. In very young parasites which occupied less than a quarter of the corpuscle the speckling was absent, although the cell was enlarged; in adult forms the dots were not only more numerous, but of a larger size. With *P. præcox* infections red corpuscles were found having dots which did not resemble in form the very fine ones of Schüffner. Maurer's dots were seen in corpuscles invaded by *P. præcox*, but more often in the larger ring forms than in the smaller, and also with greater clearness. From these observations the following doctrinal and practical conclusions may, perhaps, be drawn. The genesis and significance of Schüffner's dots and Maurer's dots are obscure; our very limited knowledge of the intimate structure of the red cell prevents us from explaining them fully. They appear in corpuscles whose parasites are not mature, and increase in numbers with the parasite's growth. Schüffner's dots are found most frequently in red cells infected with *P. vivax* and have therefore been regarded as characteristic of this parasite. Though Prof. Pastore has seen them occasionally in red cells occupied by the parasite of quartan in the sporulation phase they are nevertheless useful to differentiate in doubtful cases between the ring forms of parasites of the *vivax* type and those of the *præcox* type, and it is certainly exceptional to find red dots in cells infected with *P. præcox*. When such dots do occur they have different characteristics from those of Schüffner. Maurer's dots, which are variable in shape, size, distribution, and rarely exceed 7–8 in number, have been held to be specific of the corpuscles infected with *P. præcox*. Later investigators have shown, however, that they are not exclusive to *P. præcox*, being found also in cells infected with *vivax* and even with the quartan parasite. These observations are confirmed by Prof. Pastore, who states that Schüffner's dots, by their frequency and ease of demonstration, are of much more interest than Maurer's. They may be seen both in the asexual and sexual forms of *P. vivax* and hence their appearance does not completely differentiate between the gametic and the asexual cycle. In *præcox*, however, every trace of speckling in the gametic cycle is wanting.

[1] Il Policlinico, Medical Section, Fasc. II., Nov. 1st.

INFLUENZA.

EACH winter there comes a series of weeks during which the mortality from all causes and especially from the respiratory group of diseases is much higher than throughout the rest of the year. This high mortality is balanced by a low summer death-rate which reaches its minimum in June and July. The winter rise of the curve varies in its date of commencement, sometimes coming as early as November, at other times delayed into the new year. Not infrequently the curve has two peaks, one in the early winter and the other in spring, and in that event it often happens that a small amplitude of one of these excursions is compensated by the large amplitude of the other. In any case, certain features of this excessive mortality are practically constant—namely, the large part which respiratory disease plays in its production, the extent to which it falls on the extremes of life, more particularly on old age, and the coincident prevalence of colds in the communitv. There appears to be a close relationship between its occurrence and a combination of low temperature with high relative humidity, in other words, the meteorological conditions often associated with fog, a fact which ought to be taken into account when a heavy respiratory mortality is attributed to atmospheric pollution in smoky towns during periods of fog. From time to time the onset of these spells of heavy mortality is more than usually dramatic and is associated with an exceptional prevalence of a form of illness mainly involving the respiratory tract, but heralded by a definite prodromal period of prostration, which we call influenza. Apart from its epidemiological behaviour it is often difficult to differentiate this disease fron the severer forms of the "common cold." Its seasonal prevalence coincides with the annual increase of respiratory disease and mortality, and it affects the same age-groups of the population. Broadly, its recognition depends on the suddenness of its appearance and the quickness of its passage, while its occurrence may be retrospectively inferred from the high proportion of all deaths which have been attributed in any year to respiratory causes. In towns this proportion is normally well under 20 per cent., in influenza years it is always above that figure and usually approaches 30 per cent.

In 1918–19, however, influenza behaved in quite an unusual fashion. First of all, it made its first appearance in the summer, affecting a large number of people with sudden prostration, its extent being measurable by its striking influence on school attendance records and a perceptible and most unusual, if slight, rise in the mortality at that season. Later, in September, the really massive wave of prevalence commenced, that is, at a time of year much earlier than the usual onset of respiratory catarrhs. The circumstances of this outbreak and its recrudescence in the following February are still fresh in the memory of the peoples of the world, but it may be well to emphasise, in addition to its unusual seasonal incidence and virulence of attack, a notable involvement of the population at the prime of life. Consequently, this epidemic has been regarded as unique, and has been the subject of a vast deal of scientific inquiry. Its epidemiological and preventive aspects are dealt with at considerable length in three articles by Dr. E. O. Jordan, of Chicago, which recently appeared in the *Journal* of the American Medical Association,[1] and are to be published in book form with the help of a grant from the Committee on Medical Research. Dr. Jordan states, as the result of his own investigations and an extensive study of American and other literature, the arguments for and against the various measures which have been advocated for controlling

[1] Jour. Amer. Med. Assoc., Nov. 5th, 12th, and 19th, 1927.

such epidemics—e.g., isolation and quarantine, closure of schools and prohibition of public gatherings, face masks, preventive influence of certain gases, prophylactic inoculation, and general measures of hygiene and sanitation. His discussion is exceptionally well documented, but the conclusions are for the most part indefinite. It is obvious, of course, that complete isolation of a community, for a period of about three months from a date before infection could possibly have gained entry, would prevail against influenza as against any other infection which is conveyed directly from person to person. But such a procedure is impracticable for any but small groups of people already so isolated that they are unlikely to have the information which would guide them to take such anticipatory measures.

Dr. Jordan is probably right in surmising that early isolation of cases, and the employment of such precautions as the people themselves will exercise in a time of exceptional alarm, may slow down the rate of transmission and so limit the number of victims while the epidemic undergoes its natural process of elimination. For this purpose, pamphlets or advertisements issued by central or local health departments, conveying advice to the public, may serve a purpose, but the American specimens of such pamphlets here reproduced err, like our own, on the side of urging the impossible. These should restrict themselves to telling the patients to take to bed on the slightest suspicion of symptoms and call in the family doctor, while advising others to reduce their contacts to the minimum, by keeping as much in the open air as possible and by ventilating freely all rooms which it is necessary for them to share with others; for that advice sums up practically all our knowledge of the prevention of influenza. It must be confessed that in the present state of our knowledge we are practically helpless in the face of such a visitation as occurred in 1918–19, and that, if influenza were to assume the virulence of pneumonic plague—a similarly conveyed disease—nothing but the most rigid forms of domestic isolation accompanied by complete disorganisation of the life of the community could avail to prevent devastation comparable to that which has visited Manchuria in recent years.

NOT "MALTA" FEVER.

THE old catch, how to make the Maltese cross, has a modern instance in the very reasonable resentment of the island of Malta against having its name associated with the disabling fever which infests the whole of the Mediterranean littoral and from there has become far more widely distributed. Malta can claim association rather with the ætiology and prevention of the disease, for it was here that the work of Sir David Bruce was begun which proved it to be a separate pathological entity by the discovery of a micrococcus in the spleen. It was, however, Bruce who attached to this organism the specific name *melitensis*, a term which is unlikely to attract attention to Malta except on the part of those familiar with St. Paul's adventures on the island of "Melita." And the designation may be altered to *brucei* at the International Botanical Congress to be held in 1930, when nomenclature will come up for consideration. The annoyance, and even material loss to the island, caused by the unfortunate use of the term "Malta fever" is set out in a memorandum[1] recently presented to the British Medical Association by its Malta branch in association with the Camera Medica of Malta. The alternative name, "undulant fever," proposed in 1897 by Captain M. L. Hughes, R.A.M.C., and recommended by the International Congress of Medicine held in London in 1913, is now generally adopted by English writers, particularly when describing cases of similar fever due to Bang's bacillus. In our own official nomenclature "undulant fever" is given as the sole synonym of "Mediterranean fever," Malta not even being mentioned, while in the international list of causes of death the rubric Mediterranean fever contains the two subtitles, Malta fever and undulant fever. The official German designation of the disease is now *Mittelmeer-fieber*, while in the most recent French text-book on hygiene,[2] the chapter headed *Fièvre ondulante* includes a footnote relating that in 1910, at the request of the Governor of Malta, the English Government asked that the term "Malta fever" should no longer be employed in official French documents. In 1911 the Académie de Médecine agreed to the use of *mélitococcie*, two years later replaced by *fièvre ondulante*. French nosology, however, continued to employ indifferently the expressions *fièvre de Malte*, *fièvre méditerranéenne*, and *mélitococcie*. Finally, the French Minister of Hygiene agreed to the denomination *fièvre ondulante* which now figures alone on the list for compulsory notification. With the disappearance of the word Malta from the official name of the disease, we shall lose almost the last survival of topographical names for disease. At one time very widely employed, the term "German measles" alone has survived, and should it cause any qualms in Teutonic medical circles we would repeat our willingness to exchange it for the surrender of the term *englische Krankheit* for rickets, which may seem to some to carry a slur—possibly indeed not altogether unmerited.

[1] See Brit. Med. Jour., Dec. 17th, p. 1158.

THE GREAT SLIDE OF DEC. 21ST.

WEDNESDAY in last week will long be remembered in the annals of the London hospitals. By a climatic freak, which is, happily, exceedingly unusual in this country, a fall of rain on frozen ground during the previous night glazed the roads and footpaths with a sheet of ice. Such conditions are much more perilous than those created by frozen snow, the inequalities of which afford some kind of foothold. Night workers returning home and those who started out to their employment long before daylight, with no suspicion of what had happened, as well as those who left much later, found walking an enterprise of great danger, while for horses and motor vehicles movement was possible only at the risk of disaster. The inevitable trouble began immediately. Road traffic was at a standstill and pedestrians, despite the aid of walking-sticks and the help given by clinging to railings, where such were available, lost their footing and fell in thousands. Most of them were fortunate enough to escape with shakings and bruises, but in a large number of instances injuries were serious enough to require surgical assistance, and by shortly after 5 o'clock in the morning ambulances and hospitals were busy, while as time went on the demands upon both were overwhelming. The pressure at some of the great hospitals was so severe that there was not time to keep accurate records, but it would appear that the ten or a dozen principal hospitals treated over 2000 cases in a few hours. Between 9 and 10 o'clock the glazed surface began to soften, and the stream of casualties gradually dwindled, but not before doctors, nurses, and ambulance drivers had reached the limits of endurance.

It is the experience of all large hospitals that the first fall of snow will bring in several cases of Pott's fracture and dislocated shoulder, chiefly due to slipping off the edge of the pavement, but the experience of Dec. 21st stands alone. Simple cases were by no means rare on that occasion, but many were more serious, though the number of really grave fractures was comparatively small. The crowded industrial district around Guy's Hospital appears to have suffered more severely than any other, and we gather that some 300 casualties were treated there during the day, about a score of which were serious. St. Bartholomew's, St. Thomas's, King's College, the West London, and the Royal Northern Hospitals each treated 200 or more cases. The London and St. George's Hospitals got off more lightly,

[2] Course d'Hygiène. Edited by Léon Bernard and Robert Debré. Masson et Cie. 1927.

though in each case the expression is purely relative. The proportion of broken limbs is not readily ascertainable, but, taken all round, it would appear to have been, roughly, about 10 per cent. The total number of patients detained was, of course, small. Many fractures do not require detention, and in some of the hospitals there were few or no available beds, as at Queen Mary's Hospital at Stratford, where the half dozen fractures, out of a total of 158 casualties, had to be sent to other institutions. At the London, St. George's, and West London Hospitals there were only six or eight detentions each—no doubt there would have been more had there been a larger number of vacant beds. This trying experience was not confined to London. It is reported that in Birmingham, the largest provincial town in England, more than 100 casualties were dealt with, while in many parts of the country the roads were encumbered with stranded motor vehicles. Happily a thaw ended the trouble in a few hours, though it is to be feared that many weeks will elapse before the last sufferer is cured.

That the emergency was met so rapidly and successfully is a definite tribute to the efficiency of the London hospital and ambulance services. The smaller institutions in town and suburbs were, proportionately, as hardly pressed as those which can rapidly mobilise very large resources, and although the ambulance service has often been criticised, it would appear to have emerged from the trial admirably enough, though delays, when calls were incessant and the highways highly dangerous, were inevitable. To the voluntary hospitals no more crucial test could have been applied, and the manner in which they met it is the best indication of the manner in which their resources can be expanded to meet a pressure so acute as to be without precedent.

Prof. J. K. Jamieson, Dean of the Faculty of Medicine of the University of Leeds, has been nominated representative of the University on the General Medical Council.

AT the Royal Society of Medicine's reception to be held at 1, Wimpole-street on Monday, Jan. 16th, Dr. Jane Walker will give an address on Sanity, Medicine, and Surgery. The Wellcome Historical Medical Museum is lending a large number of exhibits, and Dr. Walker has collected many paintings illustrating her subject. Guests will be received as usual from 8.30 to 9 P.M., but the address will be given at 9.15 instead of 9.30. Tickets of admission will be required by those who are unaccompanied by a Fellow of the Society.

DONATIONS AND BEQUESTS.—The Corporation of the City of London has allocated, under the bequest of the late Mr. A. B. Bosher, the following sums of money to hospitals: Guy's, London, and St. Thomas's Hospitals, £6000 each; Middlesex, £5000; St. Mary's, £4000; St. Bartholomew's, Royal National Orthopædic, Royal Northern group, St. George's, University College, and the West London, £3000 each; Charing Cross, King's College, Metropolitan, Royal Free, and Westminster, £2000 each; City of London (Victoria Park), East London, Hampstead General, London Fever, London Temperance, and Queen's, £1000 each; Belgrave, East End Mothers', Elizabeth Garrett Anderson, London Lock, Miller, Mothers', Queen Charlotte's, and St. Paul's, £500 each; Central London and Chelsea, £400 each; St. John and St. Elizabeth, St. John's (Lewisham), and South-Eastern, £300 each; Mildmay Mission, St. Peter's, British (for Mothers and Babies), Hospital for Epilepsy, Kensington and Fulham, North Islington, Paddington Green, Samaritan, and West End Hospitals, £200 each; St. John's Hospital for the Skin, Streatham Babies' Hospital, and Central London Ophthalmic, £100 each. Under the same bequest the Sheffield Corporation has divided £27,000 among Sheffield hospitals—namely: Sheffield Royal Infirmary, 45 per cent.; Sheffield Royal Hospital, 43 per cent.; Jessop Hospital, 8½ per cent.; Children's Hospital, 3½ per cent.—Mr. Albert Levy, hon. treasurer of the Royal Free Hospital, has added £14,000 as a Christmas gift to the £6000 he has already contributed to the hospital's funds. The President, Lord Riddell, has increased his donation by a similar contribution.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

CCLVI.

THE TREATMENT OF EMERGENCIES IN ANÆSTHESIA.

THERE may come a time to all anæsthetists when the death of the patient appears imminent. The unavoidable occasions are those in which an operation is performed as being the only means of saving a patient's life, but entails bad risks both for the surgeon and for the anæsthetist. In the avoidable cases, which diminish as skill in anæsthesia increases, there has usually been a failure on the part of the anæsthetist to observe, or to interpret, such untoward signs as may have been present. For the successful treatment of such cases it is of supreme importance that the anæsthetist should not wait until the patient is in extremis. The futile administration of oxygen or CO_2 after the stoppage of respiration, or the injection of potent drugs under the skin when the heart has ceased to beat, is still seen too frequently.

Emergencies fall naturally into two groups: (*a*) partial or complete stoppage of respiration; (*b*) failure of the circulation. The failure of either of these systems may be nervous in origin, and if one fails the other will do so unless remedial measures are taken speedily, and are successful.

Respiratory Difficulties.

The causes of respiratory difficulties may be classified, according to their manner of affecting the respiration, as (1) obstruction of the air-passages; (2) interference with the respiratory movements, and (3) interference with the nervous control of respiration.

Obstruction of the air-passages.—In the first division are included such conditions as spasm of the upper respiratory tract; the presence of foreign bodies such as teeth, tonsils, or blood-clot in the larynx or trachea; the presence of fluids such as blood, pus, mucus, or vomit in the trachea; swelling of the mucosa, as in œdema of the glottis; and alteration in the normal anatomy of the tract as in the collapse of the trachea in goitre, or the falling back of a wash-leather epiglottis. Treatment must aim at relieving the obstruction without delay. In a condition of spasm the obstruction usually occurs in the early stages of anæsthesia, and is due to the administration of a greater concentration of anæsthetic than will be tolerated by the patient. Temporary cessation of the anæsthetic and a few breaths of air or oxygen will usually relieve this. If necessary, the mouth must be forced open and the tongue held forward. If a foreign body descends to the larynx, the patient's head must be lowered at once and an effort made to remove it. This is a type of accident that occurs not infrequently in children's clinics for the removal of tonsils and adenoids. Blood-clot, tonsils, or loose temporary teeth may drop down the throat and become a source of danger. The child should at once be held up by the legs while a careful search is made for the foreign body. If impaction in the larynx takes place, a tracheotomy may have to be performed. For fluids in the throat the same treatment must be adopted. To lower the head is the best means of removing the fluid. The passage of a stomach-tube during induction in cases of acute intestinal obstruction will often prevent the inhalation of large quantities of fæcal vomit. Where there is the possibility of hæmorrhage, as in buccal operations, the anæsthetic should be given by means of a nasal catheter, the pharynx being well packed with gauze or sponge. In cases of retropharyngeal abscess, where there may be a sudden burst of pus into the throat, if a general anæsthetic is required it should be given either by the intratracheal method or through a laryngotomy tube. The anæsthetist must be pre-

ared to lower the head rapidly should the abscess urst during induction. With an œdematous larynx, s in Ludwig's angina, a tracheotomy may be a ecessity. In the removal of large goitres a softened achea may collapse suddenly and obstruct the spiration. Intratracheal anæsthetic should always e given in such cases to avoid trouble in the middle the operation. Lastly, it sometimes happens that hen full anæsthesia is reached the epiglottis may ll backwards and cover the top of the larynx. If is so-called "wash-leather" epiglottis be hooked wards, respiration will proceed normally, and for ie continuation of the anæsthetic a tracheal catheter ould be passed.

Interference with the respiratory movements may be ie to the pressure of instruments on the patient's igastrium; to the pressure of the viscera on the aphragm in a high Trendelenburg position; or to essure on one side of the thorax if the opposite lung out of action. Operators are liable to forget that though the abdomen makes an excellent instrument ble it was not intended to serve as such. Two or ree pounds of cold steel placed on the epigastrium an already shocked patient or a child may cause arked dyspnœa. With very obese patients, especily if chronic cardiac or pulmonary disease is esent, a high Trendelenburg position sometimes oduces cyanosis and dyspnœa. To these patients ygen must be given, and they should only be kept ted for as short a time as possible. Patients who ve only one functioning lung may require operation the diseased side of the chest. If lying on the und side causes embarrassment, the shoulder ould be supported with a pillow so as to enable e chest wall to expand freely.

Interference with nervous control of respiration may brought about by (1) toxæmia, from overdose of æsthetic; (2) anæmia, from excessive fall in the ood pressure; or (3) reflex inhibition, as when erative measures are started on a partially anæsthed patient. The treatment is the same for all cases. ie anæsthetic must be discontinued and the patient's ad lowered. Oxygen and CO_2 (5 per cent.) should be ministered by inhalation, and if respirations have ased they must be continued artificially. A powerful mulus, such as the stretching of the anal sphincter, ll often start respirations again. Two drugs are rticularly useful here, and both should be injected. ychnine gr. 1/30 is valuable for its action on the tor cells of the spinal cord, and lobeline gr. 1/10 a powerful stimulant to the respiratory centre. It s sometimes happened that premature lowering of head in cases where a spinal anæsthetic has been en has led to paralysis of the phrenic nerves. In h cases strychnine must be injected and artificial piration carried on until the effect of the drug has ased off.

Circulatory Difficulties.

Circulatory difficulties may be (1) due to the direct ct of the anæsthetic; (2) due to the effect of the ration; and (3) due to failure of respiration. nerally speaking, the anæsthetist is given warning the presence of a rapid and possibly irregular se, and by the presence of cyanosis.

Effect of the anæsthetic.—Where the anæsthetic is ectly responsible for cardiac failure, either myodial degeneration or a poorly compensated valvular on is usually present. Chloroform is the chief nder. It exerts a toxic action on the heart muscle, ich action is accentuated in the presence of cyanosis. longed administration of gas and oxygen in old feeble persons may also cause heart failure. Its ct has been described as similar to that which ld be produced if the patient were made to run ill. An overdose of anæsthetic is liable to produce diac inhibition and bulbar paralysis. The anæstic is also held responsible in deaths from status phaticus. In treating these cases of circulatory ure the head must be lowered so as to keep the in well supplied with blood, and an effort must made to eliminate the anæsthetic. For this pure oxygen with 5 per cent. CO_2 should be administered. If the heart has not actually stopped beating the anæsthetist should inject cardiac stimulants intramuscularly. Those most likely to be of value are strophanthin gr. 1/240, caffein sod. sal. gr. i.–iii., or ether 1 c.cm. if the patient has not been having this drug. If the heart has ceased to beat, 5 minims of adrenalin (1/1000) should be injected directly into the left ventricle. Failing this, and as a last resort, the heart should be massaged through the diaphragm. Sudden concentration of chloroform vapour in the early stages of induction may cause the heart to fail by vagal stimulation. An injection of atropine gr. 1/100 given before operation is the best means of preventing this catastrophe.

Effect of the operation.—Failure of circulation due to the operation is most often attributable either to shock or to hæmorrhage, or to an embolus; less frequently to the lowered blood pressure which follows the injection of a spinal anæsthetic. In cases of shock and hæmorrhage it is essential that the patient be supplied with warmth and fluid. A transfusion of blood is undoubtedly the best method of giving fluid, and, failing that, saline should be given intravenously or by the rectum. The patient should be returned to bed as speedily as possible and warmth supplied by hot blankets or a hot air cradle. The foot of the bed should be raised on blocks and an injection of morphine should be given. If collapse occurs as a result of diminished blood pressure following a spinal anæsthetic, the head should be lowered and 1 c.cm. of pituitary extract (10 international units) injected intramuscularly. Pulmonary embolism is, fortunately, rare during anæsthesia. Its occurrence is sudden, and is accompanied by cyanosis and immediate cardiac failure. The anæsthetist can do little but administer oxygen.

Effect of Respiratory Embarrassment.

Where the respiration is primarily at fault, it is obvious that if breathing has actually ceased it will only be a matter of time before the heart also ceases, unless effective measures are taken promptly. If the respiration is obstructed a strain will be thrown on the patient's heart because of the greater muscular effort required to breathe and the deficient oxygenation which is liable to occur. If partially obstructed respiration is present for any length of time it may lead to heart failure in feeble or fatty patients or in cases where the heart is already weakened by chronic valvular disease or by myocardial degeneration. To treat the heart one must treat the lungs, and the obstruction must be relieved by whatever method the occasion demands, whether it be the use of an airway, support to the chin, alteration of posture, or alteration in the method of giving the anæsthetic.

Conclusion.

Prevention is notoriously better than cure. If there is any one method better than another in the prevention of fatalities under anæsthesia it is in the maintenance of a perfectly free airway. If emergencies should occur, let the careful anæsthetist remember these two rules—(1) keep the head low; and (2) let the remedies be prompt. It is better to start treatment five minutes before the patient is dead than five minutes after.

J. K. HASLER, M.B., B.S. Lond.,
Anæsthetist to St. Mark's Hospital, the Metropolitan Hospital, the Dreadnought Hospital, and the Miller Hospital.

Corrigendum.—In the article by Dr. Eric Pritchard which appeared last week allusion was made (p. 1357) to one of the vitamins as water-soluble D. This should, of course, read water-soluble *B*.

INFIRMARY FITTED WITH WIRELESS.—The Salford Union Infirmary and the Old Peoples Homes and Nurses' Home have been fitted with 783 headphones and 29 loud speakers. The entire installation has cost about £1000, towards which Mr. Alfred Willett, of Broughton, contributed £750, the remainder being raised by public subscription, as guardians are not allowed to incur expenditure on such apparatus.

Special Articles.

RADIUM TREATMENT OF CANCER OF THE CERVIX.

BY HELEN CHAMBERS, C.B.E., M.D. LOND.,
FULL-TIME INVESTIGATOR FOR THE MEDICAL RESEARCH COUNCIL.

THE recent report issued by the Ministry of Health [1] on the results of treatment of cancer of the uterus is a matter of serious concern to all who are responsible for the treatment of patients suffering from this disease. The report is a statistical inquiry based on an analysis of the existing literature prior to March, 1926. It deals with the results of treatment of not less than 80,000 cases of uterine cancer and compares the results obtained by surgery with those obtained by radiology. Cancer of the body of the uterus is considered separately from cancer of the cervix, because the problems associated with the disease at these two sites are widely different.

Radium treatment of cancer of the cervix has been in extensive use in foreign countries since 1913 and a vast literature has accumulated, dealing with over 5000 cases. During the period under review surgical technique has reached its limits, for the methods of operation have been standardised for many years. Radiological technique, on the other hand, has been largely in the experimental stage, and although great advances in technical methods have been made, the limits of these developments have not by any means been reached. The technical methods adopted in the radiological treatment of the cases under review have therefore on the whole been more elementary than those of surgery; but, nevertheless, the results of radium compare very favourably. When the general results of these two methods of treatment of operable cancer of the cervix are compared they are found to be closely alike; there is, however, an important factor weighing against the surgical method, the relatively high operation mortality of 17 per cent. Compared with this radium has an immediate mortality of less than 1 per cent. When only inoperable cases, which are completely hopeless from the point of view of the surgeon, are considered, roughly 12·6 per cent. can be saved, for prolonged periods at any rate, by radium. This figure is based on a five-year period.[1]

These conclusions are a summary of the evidence produced by many different clinics, and they therefore have the special value that they are not subject to the bias of any individual observer. When the evidence is examined in detail the results are, of course, found to vary widely with different clinicians; they also vary with different countries, for some have advanced in technical methods much more than others. These facts mean that we have to advise patients suffering from cancer of the cervix (except perhaps in the very few cases* where the disease has only reached its earliest stage), that if they obtain modern radium treatment their prospect of life will be as good as if they submit to operation, and the immediate risk of radium treatment is practically nil. Needless to say, no woman will submit to a severe surgical operation when she knows that this is true. But the soundness of this outlook clearly depends upon what is meant by modern radium treatment. We have no right to advise against competent surgery, even with its comparatively high death-rate, unless there is a reasonable prospect that the alternative radium treatment will be carried out with all the skill and knowledge that science now possesses. The experience of the last 12 years has conclusively shown that radium therapy is a specialised art which completely fails to save life unless the essential technical conditions for success are understood.

* There are no data yet available for cases such as these treated with radium.

It is an astonishing fact that in this country w are much less advanced in the treatment of uterin cancer than certain foreign countries. Radium ha only been used in England on scientific lines for th treatment of this disease since 1921, and in very fe clinics only. Comparatively few of our hospita carry out radium therapy at all for these case many possess no radium, and some which possess have not enough to treat uterine cancer effectivel This is a deplorable state of affairs which urgentl needs rectifying.

The use of radium for the treatment of cancer the cervix requires a skilled gynæcologist with a intimate knowledge of the disease and its patholog and of the physical and biological properties radium. Without this equipment it is impossible t treat the zone involved by the cancer with a effective dose of radiation. In this disease the use radium has passed the experimental stage, althoug it is still in the transition period of a new form treatment. The technique will doubtless be subje to great improvements as experience and knowledg increase. Certain known facts, however, large determine the results. The object of this paper is emphasise some of these essential points of techniqu

General Method of Treatment.

There is as yet no general agreement as to the be means of treating cancer of the cervix with radiu Many different methods are in use and they vary i the quantity of radium used, the dosage, and th method of distribution. When the earliest cases we treated very little was known about the range action of radium tubes and applicators or the biological effects. The methods of treatment we largely empirical, and all treatment other tha surgery was looked upon as a palliative measur The clinician using radium in the early days on treated cases which were completely hopeless fro the surgeon's point of view, and looked upon a po result as the inevitable and unavoidable consequen of the disease. The usual method was to insert single tube applicator into the cervical canal or again the growth for a varying time, often for 24 hou In the great majority of cases the extent of the growt was far wider than the range of action of the applicato and in practice this treatment did little more tha treat the surface of the disease. Temporary benefi nevertheless, often followed. The case was the watched until definite signs of extension were eviden and the same treatment was then given again son two or three months later. It was usual to repe the treatment as long as the patient was well enoug to attend the out-patient clinic, usually for six nine months, and occasionally for several yea It is sincerely to be hoped that this method of trea ment will never again be carried out in England there is complete proof that it invariably fails. It like cauterising the surface of a carcinoma a hoping for success.

In contrast with this treatment is the metho adopted when an attempt is made to cure the diseas The range of action of the radium tubes and applicato and the approximate dose required to produce lethal effect on cancer cells are known within limit The treatment is planned soon after the patient first seen and the whole course of radiation carri out within a few weeks. The radiation is arrange so that an effective dose reaches as widely as possib in the region involved by the disease. If the growt recurs the treatment is recognised as having faile The conditions are now much less favourable f further treatment, as the growth has extended a wider zone and the cancer cells may have acquire tolerance to the radiation. If further treatment decided upon, it is clearly useless to give the sam treatment again; either a heavier dose of radiatio must be given or the treatment must be appli to a different zone. For the benefit of subsequen cases the reason for the failure must be carefull sought, and the original technique critically examine to see if it can be improved. As a matter of fac

such heavy doses of radiation are now given that it is usually impossible to repeat the original treatment, and it is comparatively rare for the growth to recur at the zone treated. Any recurrence is usually at the edges or beyond. Recurrence at the original site generally means faulty distribution of the radium or inadequate dosage.

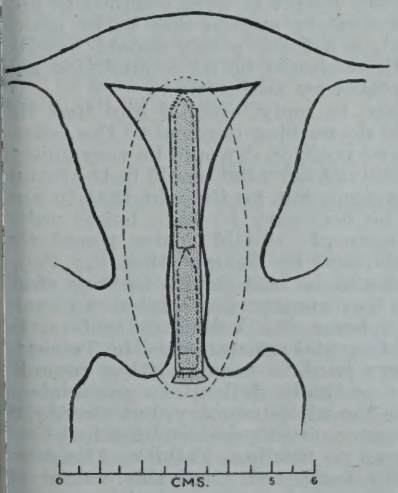
The success of radium treatment in cancer of the cervix depends upon the fact that for many months the disease is a local one. It involves a region which is accessible, and one to which a heavy dose of radiation can be safely applied if special precautions are taken. When the disease has spread widely to the deeper structures of the pelvis it is doubtful whether any form of radiological treatment can prevent the cancer cells from growing. It is a common but erroneous idea that it is possible to sterilise the whole of the pelvis. As a matter of fact, the dose of radiation required to kill cancer cells is so heavy that if it were applied to any large region of the body the patient would die. The treatment with heavy doses has, therefore, to be limited to a comparatively small field.

The most serious objection to radium therapy is that it fails to treat pelvic lymphatic glands. They are only involved, however, in about 37 per cent. of these cases at the time of death, and as the majority of patients are first seen a year or 18 months earlier, it is reasonable to suppose that the greater number of patients when first seen have no gland involvement at all. This is supported by the fact that many cases are alive and well ten years after radium treatment. The truth can only be determined by statistics on a large number of cases. Clinicians state that they often find glands involved at operation, but this is not convincing to a pathologist. It is a common error, even after microscopic examination, to mistake enlarged glands of long standing inflammation for glands involved with growth.

Distribution of the Radium.

The range of the effective action of radium tubes and applicators is so limited that the position in which they are placed in relation to the growth and to each other determines the results. Fig. 1 shows approximately the effective range of a tube applicator containing 50 mg. of radium element placed in the cavity of the uterus for 48 hours. This is roughly an ellipsoid; its length, size, and shape depend upon the length of the applicator and on the amount and distribution of the radium. The size increases with longer exposures, but only to a very small extent. When this ellipsoid is compared with the zone usually involved by a carcinoma, it is evident that a single tube, however placed, can only rarely, if ever, treat the whole region affected. Single tube applicators have now been universally discarded in modern methods of technique.

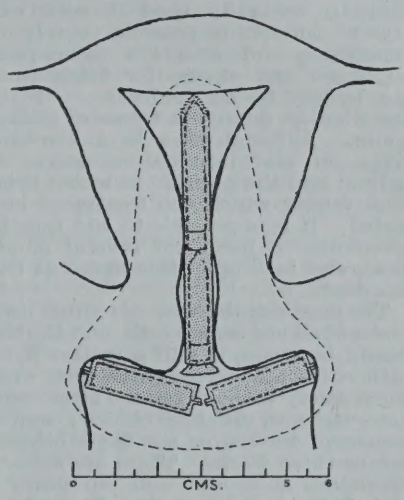
FIG. 1.



Shows the zone of effective radiation when a single applicator containing radium tubes is inserted into the cavity of the uterus.

It is therefore essential to use multiple sources of radiation at the site of the growth. When two or more radium applicators are placed near to each other, the adjoining tissue receives radiation from them all, and the dose is then the sum total which reaches a given spot from every source of radiation. This dose depends upon the amount of radium, its distribution inside the applicator, the distance it is away, the filtration, and the absorption of the intervening tissues. Fig. 2 shows the range of effective action when a central tube containing 50 mg. of radium element is placed in the uterine cavity, and three flat applicators, each containing 25 mg. of radium element, are placed in the vaginal vault for 48 hours. The size and shape of the cone vary with the condition of the cervix, for the size of this determines the plane in which the flat applicators can be placed. It is at once obvious that this method of distribution offers a much better prospect of treating carcinoma of the cervix successfully than does the use of a single tube applicator. The distances of effective action from the sources of radiation are based on experimental biological tests. I am indebted to Prof. Russ for adding the dotted lines to these diagrams, and to the Cancer Research Committee, of the London Association of the Medical Women's Federation for allowing me to reproduce them from their first report.[2]

FIG. 2.



Shows the zone of effective radiation when cross firing is obtained between an intra-uterine applicator and flat applicators in the vaginal vault.

One of the most important points is that the wider this cone is made at its base, the greater will be the prospect of saving the patient's life; it is therefore necessary to stretch the vault of the vagina to its widest capacity. Clinicians find it far easier to insert a small applicator than a large one, and they often pack radium tubes closely to the cervix, with the result that they obtain a more intense but smaller cone of radiation, and the outlying parts of the growth are ineffectively irradiated. The results are correspondingly poor. At the Fondation Curie (Régaud), although a somewhat different method is used, this point is recognised. Two radium applicators are attached to a spring which keeps them as far apart in the vault of the vagina as the space will allow.

It is impossible in this paper to go into details of the many other methods of distribution of the radium which are now employed at different clinics. A method very similar to that shown in Fig. 2 has been used in Stockholm (Forssell Heyman) for the last 15 years, and a similar method has been used in Japan (Ikeda) since 1914; the results are some of the best on record. This method has only been used in England since 1925 at two London clinics, and, as far as I know, it is not in use at the present time anywhere else in this country. The largest number of cases treated by this method and recorded in our own literature have been treated under the auspices of the Cancer Research Committee of the London Association of the Medical Women's Federation. They report [3] 117 cases with no death directly due to the treatment. Fifty per cent. of their cases treated more than a year ago are stated to be free from signs and symptoms of cancer; the percentage operability of these cases was not more than 15 per cent. These results are too

recent to justify conclusions as to the ultimate value of the method, but as far as they go they agree with the foreign reports and compare very favourably with the results at those clinics which report 70 per cent. of cases as having died within a year of the patients first being seen.

Dosage.

The question of dosage is as important as the method of distribution. All clinics recognise that their early work was done with inadequate doses. Radium was known to be dangerous and the clinician naturally used it with caution. At the present time it is possible to rely on wide clinical experience and scientific technique, and there is no longer any excuse for using small doses which are known to be ineffective. It is customary to describe the dosage in terms of milligramme element hours. Although this is a convenient method it gives no real information unless the amount of radium and the position in which it is placed and the time during which the treatment is carried out are stated. It is impossible to add together all the doses given over a period of several months, as is often done, and look upon this figure as truly representing the dose.

The most suitable dose of radium needed to cause the death of all the cancer cells, and the time in which this should be given, is still a matter for research. Most authorities are agreed that 7000 m.e. hours can be given safely without serious after consequences. The time varies in different clinics; some give the whole treatment in five or six days, others spread it over two or three weeks. There are a few cases on record which are alive and well ten years after treatment with 3000 m.e. hours, but it is almost certain that the clinics which reduce their routine dosage to this amount also reduce the percentage of their successful results. The object of the treatment is to give, as far as possible, a uniform radiation to the whole region involved by the disease and only to give just enough to prevent the cancer cells from living. If this is achieved the connective and epithelial tissues which ultimately replace the growth are not seriously damaged.

General Technique.

In this very short account of an intricate subject it is impossible to consider many important details. For example, the failure to pack off a radium applicator and to appreciate its range of most intense action may result in the normal bladder or rectal mucous membrane receiving an intense exposure; long-standing and distressing symptoms and fistulæ may result. If the bacterial infection which is so commonly associated with this type of case is not treated, the insertion of the radium tubes may set up an acute pelvic abscess. Many of the immediate deaths are due to this. A uterus involved with soft friable growth with an orifice difficult to find can easily be punctured by inserting radium. All these risks, which are very real, become practically negligible in the hands of a competent clinician trained in this very specialised field of work.

Conclusion.

It has been conclusively proved that for the large majority of patients suffering from cancer of the cervix modern radium treatment can completely replace surgery and give equally good and long-standing results; the immediate risk of the radium treatment is practically nil. The lives of many women, quite hopeless from the surgeon's point of view, have been saved for ten years and more. The treatment can often relieve distressing symptoms even when it does not save life; there is some evidence that it can prevent fistula formation.

The success of this treatment entirely depends upon the use of a scientific technique, and it requires a skilled gynæcologist specially trained in the work. Without this radium is often dangerous and is practically always useless as a means of saving life.

Very few women in this country can obtain this modern radium treatment, and many of our leading hospitals are entirely without the facilities for providing it. With extended knowledge it is to be hoped that this state of affairs will very soon be rectified.

References.—1. Cancer of the Uterus, J. E. Lane-Claypon, Reports on Public Health and Medical Subjects, No. 40, 1927. 2. The Radium Treatment of Cancer of the Uterus, Cancer Research Committee of the London Association of the Medical Women's Federation. H. K. Lewis and Co., Ltd., 1926. 3. British Empire Cancer Campaign, Annual Report, 1927.

SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

SCOTTISH HOSPITAL POLICY.

FUTURE relations between voluntary hospitals and local authorities in Scotland are none too easy to define, but their course has been made clearer by Sir John Gilmour's replies to a recent deputation from the Scottish Regional Committee of the British Hospitals Association. In introducing the deputation, Colonel J. A. Roxburgh said that there was an estimated shortage of 3600 hospital beds in Scotland, and while the voluntary hospitals wanted to coöperate with the public authorities, they felt it necessary to have a lead from the Government on the methods of coöperation, especially in view of the proposals for Poor-law reform. Colonel D. J. Mackintosh, for the deputation, then asked the following questions:—

(1) Is it proposed to establish a unified hospital service in Scotland?

(2) If the answer is in the affirmative, would the statutory hospital service cover the whole field of medicine and would it work in competition with the voluntary hospitals?

(3) Who is to provide the necessary additional beds after the present building programmes of the voluntary hospitals are completed?

(4) Will the voluntary hospitals and the public authorities work in coöperation round the voluntary hospitals as centres?

(5) Is it proposed to give financial aid to the voluntary hospitals, as recommended by the Mackenzie Committee?

(6) Is there any need to establish a statutory general hospital service?

It would be a public disaster, Colonel Mackintosh said, if the voluntary hospitals were crippled in any way, but if the voluntary system was to be maintained in Scotland, a definite policy should now be declared so that there should be no competition and rivalry with the statutory authorities.

Sir John Gilmour, in reply, assured him that the Government would do nothing inimical to the voluntary hospitals, whose position it would be very unwise to disturb. He could not say what would be the future of the Poor-law system, but he thought that in any scheme it would be necessary to have larger units. Coöperative arrangements should centre round the voluntary hospitals, and he thought that the Poor-law institutions should be brought up to their standard. Whilst the Government was anxious to avoid doing anything to harm the voluntary system, he could not promise financial assistance as the Treasury were finding it very hard to meet existing commitments. It was exceedingly difficult to enunciate a common policy for the whole country, but already in Scotland some advance on coöperative lines had been made in such places as Stirling, Falkirk, Aberdeen, and Glasgow. He suggested that the voluntary hospitals should appoint a small committee to act as a link between the regional committees and his department. This might be very helpful in solving regional difficulties.

The Position Considered.

Probably the hospitals will be disappointed with the Secretary of State for Scotland's reply to their six questions. But it is obvious that the answer to those questions depends on two main factors—namely, (1) public opinion about the proper use of the Poor-law hospitals, and (2) the necessity for a large increase of beds in the voluntary hospitals if they are to meet the ever-increasing demand for

accommodation. A Government grant is out of the question; how to tackle the Poor-law is not yet determined, in spite of 20 years' discussion and agitation; and meanwhile the Poor-law and the public health hospitals must face the statutory duties imposed on them.

Judging by the published report of the conference with the Secretary of State, the Hospitals Association does not seem to have considered the important fact that public health hospitals are now obliged to provide for large groups of diseases that formerly would have fallen to voluntary hospitals. Again, notification of the pneumonias, for instance, has brought to the public health hospitals thousands of cases that five years ago would never have found their way into any institution. The voluntary hospitals, although they do a great deal, are incapable of dealing with epidemics of pneumonia; still less can they provide for the equal, perhaps greater, epidemics of bronchitis, for which hospital treatment is increasingly demanded. The next big new field will be early rheumatism in children and adolescents, and within a few years (say five) these cases will run into thousands as the pneumonias have done.

The voluntary hospitals confine their attention too much to the work they themselves are doing. Only a few years ago they were treating almost all the tuberculosis cases that received any treatment at all. After tuberculosis became a notifiable infection, the numbers rapidly outran all voluntary capacity, and to-day nothing short of the resources of the local authorities can look at the problem. The death-rate continues to fall, but the cases in hospital and sanatorium continue to increase. Thus it appears that the hospital problem is being forced forward because new fields of disease are being systematically explored. The questions put by the voluntary hospitals are relevant enough if we are to assume that those hospitals have reached the limit of their activities and can be regarded as static. But this is what we cannot assume. The voluntary "principle" is safe enough, for a large section of the community prefers the voluntary method of providing for certain forms of disease, and the great medical schools will maintain their control, for the whole community wishes that they should do so. But the fresh waves of cases will not stop, and all the available hospitals will be compelled to adjust themselves to one another. Whether we call this process of adjustment "coöperation" or not, matters little; the process is going on rapidly and is inevitable.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

Notification of Infectious Disease.

IT is notorious that the notification of infectious disease has been slackly carried out in Ireland at all times. This has been due to several causes. In the first place, until 1925 notification was only compulsory in certain areas, and therefore it was not recognised as a pressing duty. Further, in rural areas the notification would generally have been furnished by the dispensary medical officer, as medical attendant, to himself, as medical officer of health. Again, as there was no effective system of public health administration, no administrative steps were likely to follow notification. Both the local authorities and the practitioners, knowing the futility of notification from the practical point of view, acquiesced in its neglect. In 1925, however, the Local Government Act made compulsory throughout the Irish Free State the notification of certain infectious diseases—namely, small-pox, cholera, diphtheria, membranous croup, erysipelas, scarlatina, typhus, typhoid, relapsing fever, continued fever, and puerperal fever. Comparatively little attention seems to have been paid to this provision, the local authorities taking no steps to enforce it. In these circumstances the Minister for Local Government and Public Health thought it proper last week to issue a circular letter to all sanitary authorities to draw attention to their duties in the matter. He observes that a correlation of the statistics of registration of deaths with those for notification of infectious disease shows that notification is insufficiently performed. It should be realised, he says, that notification is not only essential for the protection of the public in facilitating disinfection and other precautionary measures, but in the interests of the individual patient enables the medical officer of health to assist in arranging for suitable institutional accommodation and nursing attendance where necessary. He suggests that general notice of the duty of notification and of the liability to penalty in case of default should be given by the sanitary authority to members of the medical profession and to the public at large by advertisement in the local press and such other means as may be considered advisable. When a county medical officer of health is appointed he will receive the notifications, as is necessary if he is to perform his duties effectively.

Certification of Insured Persons in the Free State.

The present system of remuneration for certification of insured persons under the National Health Insurance Acts has been working since the beginning of 1916. Under it the funds available for payment in rural areas are distributed to the members of the profession on the basis of a pool for each dispensary district. The pool is divided among the several certifiers entitled to share in it in proportion to the work done by each. The National Health Insurance Commission has now notified the Irish Medical Committee of its dissatisfaction with this arrangement. It is said that serious anomalies have arisen in some counties owing to considerable divergence in the rates of payment in adjoining areas. Furthermore, the cost of administering the present scheme is said to be greater than the Commission thinks justified. The Commission proposes, therefore, to substitute a county pool for the dispensary district pool as from Jan. 1st, 1928. Such a change is likely to require consideration as many of the country practitioners were insistent, at the time the scheme was drawn up, on the dispensary district pool.

BUCHAREST.

(FROM OUR OWN CORRESPONDENT.)

Actinomycosis in Bessarabia.

THE district medical officer in Czernowitz has been investigating some cases of human actinomycosis near the Bessarabian border. The seven which he examined were nearly all infected on the face and neck, and in each the clinical diagnosis was confirmed by microscopical examination of the pus. If to these seven are added three others observed by a colleague in Chisinew, the total number of cases reported from mid-eastern Europe becomes 46. In 24 the infection was limited to the face and neck, whilst in the remainder the viscera were attacked. The district officer has collected some 250 cases from the literature, both at home and abroad, and deduces that the cutaneous forms cause death in only 2 or 3 per cent. of cases. In cervico-facial actinomycosis the mortality is, he says, 10 per cent., rising to 30 when the disease is deeply seated in the temporo-maxillary region, and to 50 in submaxillary infections, which are fairly common as a result of straws being used for picking teeth. The death-rate in abdominal actinomycosis of intestinal origin he gives as 65 per cent., and there are only about 15 per cent. of recoveries when the liver or cerebro-spinal system is attacked. Presumably these figures refer to the condition found when the patient first comes for examination.

Demoralisation of Children.

A Rumanian judge has been saying to the Child Study Association that in all the large cities of this

country children are surrounded in the streets by dirt, miserable dwellings, cold, illness, starvation, and famine. Life on the streets is undisciplined, and prostitution is carried on openly. He has fought, he says, for ten years for the erection of a detention home for young delinquents, where they may be segregated from adults by whom they are taught immorality and hatred of work. Years ago he suggested the establishment of a special police force to look after children, but the plan has remained nothing more than a plan. He estimates that 30 to 40 per cent. of the young women are infected with venereal diseases, so that in some cities the police refrain from making raids because the hospitals cannot accommodate the vast numbers of patients they would gather. Among the causes of low moral standards are adverse family conditions and unemployment, together with alcohol, the primitive intelligence of parents, and the neglect of children by those who go out to work. Advocating the development of a social policy and a radical improvement of housing, he pointed out at the same time that if the next generation is to be properly educated fewer criminals and prostitutes must be permitted in their midst.

Salvarsan in Tabes.

Discussing the treatment of tabes at a recent meeting of the Cluj Medical Society, Dr. Elfer said that the danger of salvarsan as a spirillicide is that it may destroy the weaker strains of parasite whilst stimulating the more resistant. This is what happens, he thinks, when an inadequate course of treatment is given, and such a course is more damaging than none at all. It is useless to give one or two injections of salvarsan at a time, repeating the dose at half-yearly intervals. If the drug is to be used at all, the injections should be made at intervals of five to seven days, and eight or ten are needed in each course. The doses, in his opinion, should not be more than 0·45 g., and the whole quantity should not exceed 4 g. The course can be repeated two or three times with intervening rests of five or six months. It is as well to remember, however, that as much harm can be done by giving too much salvarsan as too little, for it may cause changes in the blood-vessels and even lead to cerebral hæmorrhage. In tabes Dr. Elfer does not, as a rule, use neosalvarsan unless the patient has had no treatment with it—or inefficient treatment—before the tabetic symptoms come on. In such cases combined courses of mercury, bismuth, and neosalvarsan may give fairly good results. One method of employing the arsenic compounds (American in origin) is to give one weekly injection of salvarsan for 100 consecutive weeks. Dr. Elfer has given this plan a trial and finds it very efficacious because it allows the patients to go on with their work. Alternatively, injections of 4 to 5 mg. of neosalvarsan may be given intraspinally, and Prof. Gennerich gives 20 or 30 such injections in succession. In such small doses, however, the drug has little or no effect on the spirochætes, and if the quantity is larger it may cause severe poisoning. Therefore Dr. Elfer does not approve of the method —apart from the fact that few patients are ready to have 15 to 20 intraspinal injections.

MANCHESTER PATHOLOGICAL SOCIETY.—At a meeting of this society held on Dec. 14th, with the President, Mr. F. H. Westmacott, in the chair, Dr. W. Susman read a paper on the relation of the spleen to immunity. He referred to the work of many observers who had indicated that the reticulo-endothelial system and the spleen in particular had to do with the production of immune bodies. It might be assumed, he thought, that the pulsations of the spleen were an indication of its function. These pulsations, as shown by Schafer, were inhibited by atropine and augmented by injections of brain extract. In a small series of rabbits the subcutaneous injection of a boiled watery extract of brain tissue had enhanced the process of agglutinin formation against *B. typhosus*. The administration of the same extract to a large series of mice, infected with pneumococcus type 1, had shown a survival of 51 per cent. of a total of 262, after a similar number of control animals were all dead. The survival extended over 2 to 3 weeks and, in several experiments, to 5 to 8 weeks, when the experiments were concluded.

Public Health Services.

SANITATION OF THE PORT OF LONDON.

Dr. W. M. Willoughby, in his report for 1926 mentions that in that year no case of plague or cholera reached the port, that no plague-infected rat was found nor was any suspicious rat mortality observed in the docks or on ships. Arsenious oxide found on apples never exceeded 1/30 gr. per lb. Considerable progress has been made in the changing of the sanitary conveniences of the port to water carriage. One pavilion of the Denton (near Gravesend) Port Hospital for infectious diseases requires renewal. These are the salient points in the report, and the Port of London is to be congratulated upon their non-sensational character, although the medical officer may miss the epidemics of plague and small-pox which made such good reading in former years. During the year 348 cases of infectious diseases were notified within the port with 16 deaths; respiratory tuberculosis, 71 cases (8 deaths), of whom the Seamen's Hospital Society took charge of 30, as well as of 9 of 15 pneumonia cases and 9 of 41 cases of malaria. There were 22 enteric cases with 1 death; diphtheria 12 cases (2 deaths), 4 from ships, 5 from *Exmouth*, and 2 from other training ships. In the disinfection of ships sulphur fumigation and washing down with disinfectant seem to give satisfaction, provided infected articles are removed for steam disinfection. There were caught and destroyed 24,130 rats, half in docks warehouses, half on board ships; of the 2106 examined most of them brown rats, none was plague-infected. One colony that could not be otherwise dealt with was besieged and its water-supply cut off; then juicy cabbage leaves became an acceptable bait, and the place is now practically rat-free. It must always be remembered that sulphur fumigation involves risk of fire. Zyklon B. contains tear-gas as a warning against its hydrocyanic acid, but its warning must be treated with respect; on an occasion mentioned one man took the warning and escaped; the other, in charge, tried to go on too long unprotected and died. Carbonic acid is another danger; a ship's officer, working in a baggage room, dropped his keys into the hold below and incautiously went down for them. He was overcome and the lascar who tried to rescue him also died. This hold contained bales of skins and polished rice, both oxygen-absorbing, also live mustard-seed and ground nuts, oxygen absorbing and carbonic-acid producing. Over 20,000 ships entered the port in the year; of the foreign-going ships, 15 per cent., of the coasting, 12½ per cent. had sanitary defects. The cost of maintenance of each patient in the port hospital was £1 18*s.* 8*d.* for an average stay of 15·7 days. Food inspection is the greatest sanitary work of this port, over 4000 tons were destroyed in the year or disposed of specially, more than half being exported. The work of the authority has been greatly increased by the new control of fats, of which 71,108 casks were imported besides 15,107 casks of "edible tallow" (whale oil). Actinomycosis compelled the condemnation of 7½ tons of beef tongues, about 1 per cent. (last year 2 per cent.). The general state of pig carcasses entering the port was found to be excellent. A cargo of chilled beef was imported from Australia in July; as the beef is not frozen there is no crystallisation of muscle substance, and while the growth of moulds, &c., is just checked, every process of manufacture requires a very high degree of cleanliness, an obvious gain to the consumer. Of 16,119 ships 13,611 of them seagoing, 1265 had dirty quarters, 68 leaky decks, 64 bad w.c.'s, 58 bad lighting, 55 bad ventilation, 53 bad heating. A case of discharge of foul water into the river was dealt with and 128 nuisances on shore premises. Of 34,034 aliens arriving 28 were found to be suffering from infectious and other diseases. At the end of the report is an appendix on the state of the canal boats, which appear to be in good order.

AN OUTBREAK OF ACUTE POLIOMYELITIS.

IN Byrom Bramwell's "Diseases of the Spinal Cord" 884 edition) infantile paralysis is said to be a rare ndition in the adult, and no suggestion is given that may occur in epidemics or may be spread by infec-on. Sporadic cases were in fact the only form then own, but nowadays it is recognised that there may epidemics over wide areas, either with no apparent nnexion between the cases or with links which can clearly traced. The epidemics in Leicester and icestershire in 1926 were examples of the former nd, whilst an outbreak of the latter variety is scribed by Dr. Bernard Wood-White in his 1926 port for East Suffolk. This outbreak (which sembles the one in the little village of Stoke Rivers, evon) occurred in the village of Dennington, which s a population of about 600. There were 15 cases cluding abortive ones with four deaths. In most ses the medical attendant was Dr. C. W. Wylde mstrong, of Framlingham, and in coming to a nclusion as to the nature of the abortive cases Wood-White and Dr. Armstrong were in con-ltation and in agreement. The following is a brief tory of the cases. Each case is indicated by a ter (or two letters for the second case in a house), d the sex and age are given in parentheses.

A. (f., 16), domestic servant at Kensington, left her ne at Dennington August 12th with a headache, died gust 14th at her place in Kensington. The cause of death s certified after post-mortem examination as "encepha-s (acute)." The subsequent history of the outbreak wed that hers was a case of poliomyelitis.

A. B. (m., 3), brother of A.; began August 20th; recovered gust 23rd; abortive type. Five family contacts aged 43, 15, 13, and 10.

B. (f., 22) lived 200 yards from A. B.; began Sept. 3rd; l under treatment; transverse myelitic type. Two ily contacts aged 68 and 59.

C. (m., 4) lived in a village three miles off; began t. 18th; recovered Oct. 1st; paralytic type with int. Seven family contacts 46, 47, 12, 11, 9, 8, and 5.

D. (m., 17) began Sept. 25th; paralytic type; still under atment.

E. H. (m., 13 m.), brother of E.; began Oct. 1st; died . 6th; paralytic type. Six family contacts of E. and H. 56, 38, 13, 8, 8 (twins), and 7.

F. (f., 9) began Sept. 29th; died Oct. 1st; paralytic e. Eleven family contacts aged 42, 40, 15, 14, 12, 10, , 4, 2, and 5 months, of whom four had diarrhœa on t. 29th.

G. (f., 22) began Sept. 29th; died Oct. 5th. Three ily contacts 55, 53, and 15.

H. (m., 13) began Oct. 6th; recovered Oct. 28th; paralytic . Four family contacts 54, 51, 18, and 15.

I. (m., 15) began Oct. 7th; recovered Oct. 13th; abortive e.

J. M. (f., 5½) began Oct. 12th; recovered; abortive type. family contacts of J. and J. M. aged 44 and 42.

K. (m., 12) began Oct. 9th; recovered Oct. 18th; abortive . Five family contacts aged 49, 59, 30, 23, and 14.

L. (m., 6) began Oct. 9th; recovered Oct. 16th; abortive e.

M. (m., 13) began Oct. 13th; recovered Oct. 19th; tive type. Two family contacts aged 56 and 45.

N. (m., 7) began Oct. 19th; still under treatment; para-type; lives next door to K. Six family contacts 44, 47, 18, 13, 11, and 3.

he epidemic lasted ten weeks. The first cases nd A. B. occurred in the Badingham-road and t of the other cases occurred in a cluster of ages in the same road about half a mile away. Wood-White assumes that all those under the of 30 are susceptible and the rest immune, and 18 per cent. of the susceptible persons in the ll area of the Badingham-road contracted the ase. There was one family with two paralytic s; a second with a paralytic and an abortive, and ird with two abortive cases. In the four cases re the source of infection was identified with e probability the incubation periods were 6, 7, 9, 11 days respectively.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

THE following are some 1926 statistics of 11 districts of varying local government status :—

Name of district and estimated mid-year population.	Birth-rate.	Death-rates per 1000 of the population.					Death-rates per 1000 births.		
		All causes.	Tuberculosis.	Cancer.	Respiratory diseases with influenza.	Heart disease.	Diarrhœa, &c., under 2 years.	Infant mortality.	Maternal mortality from childbirth.
East Ham C.B... (146,600)	17·1	9·6	0·96	1·35	1·6	1·2	8·4	56	2·0
Woolwich M.B... (141,900)	17·4	10·2	1·16	1·39	1·6	1·3	5·3	43	2·4
Ealing B. .. .. (91,783)	14·0	10·1	0·86	1·53	1·6	1·6	3·9	55	3·1
Wigan C.B. .. (88,620)	20·0	13·1	0·93	0·91	3·6	1·0	9·6	103	4·5
Southport C.B. .. (77,970) ..	11·9	11·9	0·56	1·58	1·7	1·7	5·4	62	5·4
Warrington C.B. (77,280)	20·5	11·6	1·42	1·07	2·6	1·6	16·3	86	3·1
Heston and Isleworth U.D. (51,240)	17·4	9·7	0·86	1·39	1·3	1·4	5·5	56	2·2
Eccles B. .. .. (45,670)	17·0	11·5	0·91	1·48	2·1	1·5	9·0	78	5·1
Dover B. .. .. (39,780)	17·6	11·1	1·30	1·60	1·7	1·2	2·7	68	4·0
Leamington Spa B. (30,040)	13·6	14·6	0·73	2·26	2·0	2·4	14·6	76	9·7
Chelmsford B. .. (22,800)	15·4	10·2	0·79	1·40	1·2	1·5	2·8	68	0·0

C.B. = County borough. M.B. = Metropolitan borough. B. = Borough. U.D. = Urban district.

East Ham.

Dr. W. Benton reports that the maternity and child welfare department is doing excellent work, but that it is still handicapped by under-staffing. During the year arrangements were made for the school ophthalmic surgeon to see eye cases referred to him from the infant welfare centres. One ante-natal clinic is held weekly and in addition to this the East Ham mothers attend the antenatal clinics of the Plaistow Maternity Charity and Queen Mary's Hospital, Stratford. The borough has no maternity home. The ophthalmic surgeon, Dr. C. L. Gimblett, reports that the cases of defective vision have to be kept under special observation. Parents are reluctant to allow their children to be sent to residential "myope" schools and there are no "myope" classes in East Ham. During the last half of the year he saw 39 cases among the pre-school children, divided into three groups. There were 29 cases of incipient squint, 8 cases of acute conjunctivitis, abscess of the tear duct or corneal ulcer, and 2 cases of congenital malformation of the eyes, all of which will derive great benefit from treatment at the earlier age. There is only one school dentist, and Dr. Benton reports that there is need for at least two more in the borough, and that no real preventive dentistry can be undertaken until they are appointed. Housing conditions are still far from being satisfactory. The new houses erected during the year numbered 347, of which 24 were municipal. Dr. Benton refers to the scandalous overcrowding on the District Railway during the early morning and evening, and regards this as a means of spreading infection during influenza epidemics.

Woolwich.

Dr. J. Macmillan reports that houses are being erected in increasing numbers each year. Of the new ones in 1926 203 were built by private enterprise and 170 by the Council; this was more than in any previous post-war year, but was still behind the yearly average before 1914. The hutments are still used as permanent homes. They were erected as a temporary expedient and have outlived their purpose and require more and more attention to maintain them in habitable condi-

tion. A few Woolwich residents have obtained houses on the London County Council estates outside the borough and the erection of 170 houses during the year on the borough council's Eltham estate has done something to ease the housing situation; but more accommodation is required, and no action can be taken to close "unfit" houses.

One of the events of the year was the opening of the new Plumstead infant welfare centre, a plan of which is given in the report. The opening of this centre marks a new departure in the unification of the London health services, as from 1927 onwards it will be used by the L.C.C. for a school dental clinic, capable of treating some 1400 children. The new centre has also been found far more suitable for sewing-classes and the like than the room formerly used at the old town hall. The council's scheme for the orthopædic treatment of pre-school children works satisfactorily and is expanding. These children are sent to the remedial clinic of the Woolwich Invalid Children's Aid Association and fees are paid by the council for each attendance. The total cost for 1926 was £191 4*s*. 6*d*. The borough has no maternity hospital, but pays £1500 per annum to the British Hospital for Mothers and Babies for the admission of 144 cases recommended by the medical officer of health. Payments are made by the patients according to their means and during the year nearly £600 was recovered in this manner. This hospital conducts an antenatal clinic which was attended by 960 mothers during the year. The births in the borough numbered 2463.

Ealing.

Dr. Thomas Orr's report is largely taken up with a description of the arrangements for dealing with the added areas. The urban district of Hanwell contained about 20,000 and that of Greenford nearly 2000 persons. Owing to the insufficiency of the Greenford Council's staff many things required attention, among others a grossly polluted tributary of the Brent had to be dealt with; Greenford's sewage disposal works were inadequate, and proposals have been made for its extension. Pail-closets had to be converted into water-closets; and sanitary dustbins for houses to be provided. The destructor at Hanwell needs enlargement. The maternity and child welfare and school medical services have been extended so as to include the two new areas; two new centres have been established; a whole-time school dentist will take the place of a part-time one, and a full-time woman assistant medical officer will take the place of part-time officers. During the year 819 houses were erected of which 100 were municipal. Before the extension no milk was produced in Ealing, but Greenford brought in six cowsheds. One was an up-to-date well-managed dairy farm, one is being reconstructed, but the other four will need much attention in order to comply with the Milk and Dairies Order, 1926.

Wigan.

Dr. Henry Whitehead says that greater interest is being taken by expectant mothers in antenatal work. During the last three years the number of expectant mothers attending these clinics was 210, 254, and 489 respectively. The total births in Wigan last year were 1775. Dental treatment was given to 39 mothers and 76 children under 5. A card is kept for each year of life up to 5 and a final record and history is passed on to the school medical officer. Far greater coöperation than formerly exists between the medical practitioners and the clinical tuberculosis officer. Consultations are frequent and many cases are sent to the dispensary for diagnosis. In Wigan, as elsewhere, however, patients with suspicious symptoms do not consult their doctors early enough. The scheme for the conversion of the conservancy closets to a modern system makes good progress. In March, 1923, there were in the borough 8234 water-closets, 840 waste water closets, 7081 pail closets, and 1563 privy-middens. At the end of 1926 there were 18,317 water-closets, 811 waste-water closets, 730 pail-closets, and 274 privy-middens. The scheme for converting the waste-water closets to ordinary water closets only began in April, 1926. A nuisance has been caused by the Miry-lane depôt, in the centre of the town, which has for years been used as a dumping ground for privy contents, and the time has come, says Dr. Whitehead, when all the refuse should be incinerated.

The housing shortage is still acute and no progress can be made in dealing with insanitary dwellings or areas, except repairs of a very temporary nature. Dr. Whitehead draws a terrible picture of the environment in which children exist in several parts of the town, and shows how the bad environment and bad habits react upon one another. All this is intensified by the crisis through which the chief industries of the town have passed during the last few years. Inability to maintain additional babies leads to an increase in the practice of criminal abortion, either by drugs or mechanical means. He suggests that there should be far greater vigilance and a service of detectives to cope with this evil, but he shows that the real remedy is of course to secure better houses, more open space in congested areas, and a better environment in every respect. The health department in Wigan has, in fact, a very difficult task before it.

Southport.

Dr. G. C. Barnes alludes to the typhoid carrier problem and thinks there is an urgent need for more radical powers to deal with it. He gives one example. In December, 1920, and January, 1921, the two grandchildren of a "carrier" were admitted to hospital for typhoid fever. A nurse at the hospital contracted the disease. In July, 1926, a person who lodged with the carrier was admitted to hospital and died from typhoid fever. The carrier herself was also admitted to hospital for observation. The nurse, in charge of the carrier at night, contracted the disease and died. In September another lodger from the carrier's house was removed to hospital suffering from typhoid and recovered. On Nov. 13th the carrier was certified as insane and removed to an institution.

Dr. Henry Bardsley reports that the venereal diseases scheme progresses satisfactorily. During the year five women patients were confined and in each case apparently healthy babies were born. Final tests were applied in the case of ten men who came up for examination before marriage. Dr. Bardsley thinks there should be greater powers to deal with women who are in an infectious state and will not submit to treatment. He cites three or four who have been the cause of disease in 23 men. One of these women was admitted for confinement and the child had congenital syphilis. She took her discharge and had failed to attend the clinic for treatment. Another suffering from both gonorrhœa and syphilis had attended the clinic on one occasion only. Dr. Bardsley estimates the cost of in-patient days and out-patient attendances of the 23 men infected by this small group of women at £320.

The obstetrician in charge of the antenatal clinic, Dr. A. S. Garden, reports that the attendances are increasing and good results are being obtained. Among those who attended the clinic there was no case of eclampsia; there was no reason to use high forceps; in several cases labour was induced before full term to avoid difficult labour, and all did well. there were seven cases of Cæsarean section, six due to contracted pelvis; three cases of breech presentation were converted and all the occipito-posterior presentations were corrected before labour.

The hours of sunshine during 1926 totalled 1474·

Warrington.

Dr. G. W. N. Joseph shows that of the 17 large towns of Lancashire only Blackpool, Southport, Bury, and Barrow-in-Furness had a lower infant mortality during 1926 than Warrington. Antenatal clinics are held at three centres and were attended by 522 expectant mothers. The number of births in the borough was 1591. One of the antenatal clinics is held at the maternity home, in which 248 women were confined during the year. There were no maternal deaths

11 stillbirths, and six deaths of infants. Five operations for Cæsarean section were performed owing to contracted pelvis, and in each case the mother made a satisfactory recovery and living children were born (in one instance twins). The five deaths from childbirth which occurred in the borough were due to puerperal fever, 2; embolism of lungs, 1; chronic nephritis, 1; and lobar pneumonia, 1. The records show that during the last ten years 109 cases of ophthalmia neonatorum were notified. The damage done consisted of a case of total blindness in 1917 and a second in 1919. There were also seven cases of partial impairment of vision. The housing problem still remains acute although 74 new houses were built by the corporation and 437 by private enterprise during 1926. There are still 586 applicants living in overcrowded conditions. The following houses have been built by the corporation—40 wooden and 6 concrete and 275 types A and B houses. Applications for municipal houses are dealt with by a subcommittee which endeavours to select the most urgent cases from the point of view of overcrowding—confinement expected, adults of opposite sexes in the same bedroom, husband living apart from family owing to want of accommodation. Almost the only group which can be dealt with are the lodgers in overcrowded houses. Up to date 137 corporation tenants have received permission to take lodgers.

Heston and Isleworth.

Dr. Elwin H. T. Nash reports that there is a lack of out-patient treatment for children in his district. He also reports a difficulty in getting the public water-supply for some of the developing districts in the western area. The mains, for example, run along the Staines and Bath roads, and in the intervening areas houses have to depend for their supply on surface wells. During the year the tip for house refuse in the Staines-road has caused an intolerable nuisance and a plague of flies. The situation was improved by the use of disinfectants and the nuisance appears to have arisen from want of care in covering the refuse with earth. Dr. Nash finds that the sanitary inspection of the district cannot be satisfactorily carried out owing to the inadequate staff of inspectors caused by the failure of the council to fill an existing vacancy. Nearly a million pounds has been granted in loans by the council under the Small Dwellings Acquisition Act and the Housing Act, but the result expected from the creation of a new class of owner occupiers, who would take a pride in their homes, has not been altogether achieved. This is largely owing to the practice of sub-letting. Dr. Nash also refers to the difficulty experienced by mothers of families in securing houses. The housing shortage has produced the problem of the van dwellers. Many of the vans are quite unsuitable for dwellings and the van dwellers are often a serious nuisance to the neighbourhood. Dr. Nash thinks more stringent powers are necessary to deal with van dwellers. Twenty-two cases of encephalitis lethargica were notified, some of which really arose in the previous year. Full case-notes are included in the report. There is no consulting obstetrician in the district, although Dr. Nash is convinced of the need of one, both in view of the importance of antenatal work and of the puerperal pyrexia regulations. In the school report the lack of an open-air recovery school and of an organiser of physical training are mentioned.

Eccles.

Dr. J. E. Spence reports that the filtration apparatus installed for the swimming baths has given satisfactory results. The bath was last filled on Jan. 6th, 1923, and the only new water added has been to replace wastage and to wash the filters. During the year the baths have been enlarged and the new swimming-baths have also been supplied with a filtration apparatus. Bell's patent filters have been adopted in both cases. There is a shortage of working-class houses. Only 108 houses were erected during the year, of which 72 were municipal. The corporation have now acquired practically all the property included in the S.E. Eccles improvement scheme, but they are compelled by the shortage to permit the continued occupancy of these houses. "Whatever may be reported about the shortage being overtaken," says Dr. Spence, "there are no signs of that happy position here." The Eccles house is ill adapted for sub-letting, and Dr. Spence sums up as follows: "The position of many of these people is intolerable. Compelled to occupy lodgings at prohibitive rentals, in many instances the accommodation afforded them is altogether inadequate. Families are living and sleeping in one room. In many cases parents and grown-up children have to share the same bedroom."

In June there was an outbreak of small-pox limited to four cases. Complete arrangements have been made to comply with the puerperal fever regulations. Dr. W. R. Addis, of Manchester, has been appointed consulting obstetrician, and in-patient treatment will be provided at Ladywell Sanatorium. Nursing assistance will be given by the health visitors, supplemented by additional nurses if necessary, and pathological specimens will be examined at the public health laboratory, York-place, Manchester. Dr. Spence refers to the importance of antenatal work, and a beginning has been made by a weekly meeting for expectant mothers, 93 of whom attended. The total births numbered 778.

Dover.

Dr. A. B. McMaster reports that owing to the operation of the new Meat Regulations it has been possible to determine the percentage of tuberculous animals slaughtered, and that 8·6 per cent. of the cattle and 1·2 per cent. of the pigs were found to be tuberculous. The new houses erected during the year numbered 109, of which 102 were municipal. No particular difficulty is being experienced in securing repairs to property. Four small insanitary areas have been represented, involving 79 dwelling-houses. Schemes have been under consideration, but, in view of the corporation's financial commitments, action is not likely to be taken in 1927. Immunisation for diphtheria is adopted for the staff at the isolation hospital and is also offered generally to the children in the borough, if the parents so desire. The Dover Medical Society is coöperating in the scheme. Scarlet fever antitoxin has been used for the treatment of a number of cases at the isolation hospital with excellent results, and clinical data will be furnished subsequently when a greater number of cases have been treated. The hours of sunshine totalled 1570·1.

Leamington Spa.

Dr. W. L. Goldie reports that building operations on the Rushmore Estate have made progress, and that the total of council houses has been brought up to 226. Tractors have been substituted for horse-drawn vehicles for the removal of refuse, and a motor ambulance has been provided by the council for the removal of cases of sickness or accident. The baths have been entirely renovated and various forms of medical baths provided. A filtration scheme has been adopted for the swimming-baths. The hours of sunshine were 1280·1.

Chelmsford.

Dr. R. H. Vercoe includes in his school report particulars of the new school. It will be a one-storey building, designed on the quadrangle principle, with a grass space in the centre and an open corridor round the inner side of the quadrangle to give access to the class-rooms. The accommodation is for 890 scholars. The windows of the class-rooms which face south are to be glazed with vita-glass. The plan and elevation of the buildings are included in the report. Dr. Vercoe has laid himself out for giving practical health lectures in the schools. The teachers were asked to make suggestions at the end of the lectures as to how the subject could be made clearer. A novelty in his report is the inclusion of essays written by members of his audiences, varying in age from 8 to 13, which showed that the writers had a good grasp of the subject ("sunlight").

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED DEC. 17TH, 1927.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 212 (last week 230); scarlet fever, 1933; diphtheria, 1495; enteric fever, 67; pneumonia, 1522; puerperal fever, 38; puerperal pyrexia, 87; cerebro-spinal fever, 7; acute poliomyelitis, 10; encephalitis lethargica, 32; dysentery, 11; ophthalmia neonatorum, 98. There was no case of cholera, plague, or typhus fever notified during the week.

Deaths.—In the aggregate of great towns, including London, there was no death from small-pox, 3 (2) from enteric fever, 81 (23) from measles, 9 (2) from scarlet fever, 19 (8) from whooping-cough, 40 (7) from diphtheria, 56 (13) from diarrhœa and enteritis under two years; and 94 (17) from influenza. The figures in parentheses are those for London itself. The death from enteric fever outside London occurred in Birmingham. Of the fatal cases of measles 13 were notified from Bristol, 12 from Manchester; while the figures from Glasgow and Dublin for the same week were 29 and 8. The number of stillbirths registered during the week was 253 in the great towns, including 52 in London.

The Services.

ROYAL ARMY MEDICAL CORPS.

Maj.-Gen. S. F. St. D. Green, late R.A.M.C., retires on ret. pay.

Col. L. Humphry, late R.A.M.C., to be Maj.-Gen., vice Maj.-Gen. S. F. St. D. Green to ret. pay.

Lt.-Col. J. F. Martin, from R.A.M.C., to be Col., vice Col. L. Humphry, promoted.

Maj. H. W. Russell to be Lt.-Col., vice Lt.-Col. J. F. Martin, promoted.

ARMY RESERVE OF OFFICERS.

Lt.-Col. A. H. McN. Mitchell, having attained the age limit of liability to recall, ceases to belong to the Res. of Off.

Lt. J. R. E. Sansom, from A.E.C., Reg. Army Res. of Off., to be Lt., and retains his present seniority.

TERRITORIAL FORCE.

Lt. A. M. Cooke to be Capt.

Second Lt. G. T. Hankey (late R.F.A.) to be Lt.

H. Watson to be Lt.

INDIAN MEDICAL SERVICE.

Maj. J. A. Shorten to be Lt.-Col.

Capts. R. C. Phelps and Byram Sorabji Dhondy to be Majs.

Lt. G. Dockery to be Capt.

Col. A. Fenton retires.

Temp. Capt. Subbier Annaswami resigns his temp. commn.

INTERNATIONAL CONGRESS OF SOCIAL WORKERS.—A bulletin issued by the Milbank Memorial Fund of New York states that 21 nations will be represented at the "first world congress of social workers," to be held next summer in Paris. It is estimated that there will be more than 1000 American delegates, and the participating groups will include the International Child Welfare Congress, the International Housing and Town Planning Congress, the International Congress of Public and Private Welfare, and the International Conference of Social Work.

THE LATE DR. T. W. CLAY.—Dr. Thomas William Clay, who died on Dec. 16th at the age of 58, started practice in Holyhead 33 years ago, and had long been medical officer of health for the Holyhead Urban District Council and port sanitary authority. A son of the late Commander Clay, he studied in the extra-mural school of medicine at Edinburgh, and took the Scottish conjoint diploma in 1891. On settling in Holyhead he became one of the best known doctors in North Wales, and held appointments as medical inspector of seamen, certifying factory surgeon, and deputy coroner, besides being medical referee of a number of insurance companies. He was also a justice of the peace for the county of Anglesey, and an Esquire of the Order of St. John of Jerusalem.

Correspondence.

"Audi alteram partem."

IS IT UNDULANT OR ABORTUS FEVER IN GREAT BRITAIN?

To the Editor of THE LANCET.

SIR,—I have read with great interest the paper by Dr. E. Wordley in your issue of Dec. 17th. The possibility of a prolonged fever of the undulant type arising in this country as a result of drinking milk infected with *Brucella abortus* has been a subject in which I have been much interested. The bacteriological evidence of the close relationship between *Brucella abortus* and *melitensis* is very strong, and it would seem that some cases of undulant fever in Rhodesia and in France cannot be traced to any source other than cow's milk, but as there is also a porcine strain of *abortus* it would be profitable to inquire whether some of the indigenous British cases of undulant fever cannot be traced to pigs. I have recently published a paper in a special number of the *Archiv für Schiffs- und Tropenhygiene* on two English cases, similar to those described by Dr. Wordley and Dr. J. Bamforth,[1] which have come under my notice during the last three years. In neither of my cases could any contact between the patient and goats or goat's milk be discovered. The first case was that of a county gentleman who owned a herd of cattle heavily infected with *abortus* and who partook of their milk (unboiled), in which the organism was actually proved to exist. He suffered from a typical attack of undulant fever which lasted three months. The blood serum in his case agglutinated *melitensis* 1 : 800 and *abortus* 1 : 1200. The second case was that of a gentleman who suffered from a prolonged febrile illness for over four months. He was proved to be a carrier of *B. typhosus*, but this was traced to a previous attack of typhoid fever and did not fully explain the nature of the present illness. In his case the serum agglutinated *abortus* 1 : 160 and *melitensis* 1 : 640. He had been drinking cow's milk obtained from the local dairy. I think little doubt can be entertained of the correctness of the diagnosis in these two cases and the significance of positive agglutination in a titre of 1 : 640, provided that the serum has been heated to 56° C. for half an hour previous to testing, can hardly be doubted. Personally, under the circumstances described by Dr. Wordley, I would accept a dilution of 1 : 400 as diagnostic. I recently have had under my care two unusually severe cases of undulant fever, one from Peru and the other a laboratory infection; in both instances the organism was isolated from the blood and also from the urine in the former, but in neither case will the blood serum agglutinate *melitensis* or *abortus* in a dilution higher than 1 : 80.

I am, Sir, yours faithfully,

PHILIP MANSON-BAHR.

Hospital for Tropical Diseases, Endsleigh-gardens, London, Dec. 21st, 1927.

RECURRENT COLDS.

To the Editor of THE LANCET.

SIR,—The fact that my own immunity from colds has been so remarkably consistent has led me to speculate why normal healthy people are so prone to catch them. In my opinion it is often because their clothes are grossly in excess of their actual needs, and I think that the subject of overclothing demands our serious consideration. The modern Briton, as soon as he is born, is promptly wrapped up in yards of woollens, and though it is, of course, true that the

[1] THE LANCET, 1927, i., 818.

heat-regulating mechanism of the human infant remains ill-developed for some time, this is no reason for continuing the wrapping-up process when the organism has become acclimatised to its surroundings. The ritual of mummifying babies is continued throughout childhood and adolescence, so that the skin very rarely comes into direct contact with air and light, its natural stimuli. Probably the whole tempo of metabolism is profoundly influenced by this air and light starvation, and a sudden change of temperature may suffice to cause a cold in people whose heat-regulating mechanism has been vitiated by unphysiological nursing.

As a matter of routine, therefore, the whole body should be exposed to the light daily, summer and winter, for a certain time, and no underclothing need be worn by normal healthy individuals. The adoption of this somewhat Spartan régime will raise the general tone of the organism and vivify every bodily function. This is a rule I have strictly observed for the past 15 years, during which time my immunity from colds has been well-nigh Olympian. I must add that I have done my utmost to catch cold by visiting the most virulent cases, but so far all my wilful attempts to infect myself have dismally failed. I still continue to discard underclothing throughout the year and I never feel the need for it in any weather.

Desiring to control this experiment I have on several occasions imprisoned myself in one of those popular "woollen combinations" and have sailed out in the open. As a result, both my temperature and pulse rose appreciably and my discomfort was so intense that I felt literally baked. I endured the inconvenience, however, but as my sense of well-being was markedly diminished it became clear to me that I had committed a grave physiological offence. On discarding the superfluous garments equilibrium was promptly re-established and efficiency correspondingly increased. No doubt if I had persevered I could have acquired a certain measure of tolerance, but as the benefits of such an adaptation appeared to be very doubtful and the dependence on additional clothes seemed an undesirable form of slavery, I decided that free ventilation was a sound investment in personal hygiene.

The main object of this regular exposure is to stimulate the thermogenic centre to a state of vigorous functional activity, so that when the individual is subjected to the inevitable changes of temperature such as occur on leaving the theatre or concert hall, the disciplined organism will adapt itself rapidly to the thermal transition even as it adapts itself to a cold bath without incurring a physiological débâcle. MacLeod [1] makes the interesting suggestion that the "congestion of the mucous membrane brought about by warm moist air does not probably depend on dilatation of arterioles, but rather on dilatation of capillaries, thus proving a stagnation of blood." If the circulation is sluggish and the thermogenic centre inefficient under certain conditions, the possibility of infection becomes almost a certitude. In my daily routine of exposing the body to the air for half an hour or so, respiration is accelerated especially in winter) and the nasal cavities are briskly ventilated. The tone of the mucous membrane is thus kept up and the occurrence of local congestion due to thermal variations is minimised, if not actually prevented. In this connexion many data are available showing the invigorating effects of open-air treatment and the rapid response to it. Lefèvre [2] states that a man who has been inured to it may sit for several hours in a cold wind without a reduction of body temperature.

Usually one finds that those who catch colds have faulty dietetic habits. The necessity of vitamins in the alimentary régime has been proved by many workers, and although neither their chemical composition nor metabolic rôle are satisfactorily known, experimental evidence supports the view that vitamins play a protean rôle, and that they cannot be synthesised by animals, which appear to require them constantly from fresh sources for perfect functional activity and also for resistance to bacterial infections and diseases generally. It is worthy of note, therefore, that in England people invariably eat vegetables and fruits cooked to a stagnant and supremely unappetising pulp. The water in which they are boiled is always thrown away, whereas on the continent it is carefully preserved and consumed, as mineral salts in solution are esteemed for their nutritive properties.

Food refinement and the chemical processes of sterilisation to ensure an artificial purity are not without serious dangers to health, and it is remarkable that all animals thrive on the coarsest and plainest foods. It is not amiss therefore to sound the warning "Memento te animal esse." An infinite range of food factors is destroyed by heating and manipulation and the body, being internally ill-treated and externally deprived of light and air stimuli, becomes incapable of achieving physiological equilibrium in the midst of the amenities of modern existence. A mere draught is then apparently sufficient to cause a procession of sore-throats and stuffy heads.

In conclusion, I will quote the words of the late Sir Clifford Allbutt, to illustrate a personal point of view put to the test:—

> "Concerning infections, I would add one more point to the precautionary methods of personal hygiene—namely, 'the toilet of the nose.' It has been a habit of mine, morning and evening, to rinse the nose well through the throat, ordinarily with water, but in times of epidemic, with a disinfectant solution. So far, I have never caught influenza or any other infection, although on more than one occasion I have received a full puff of breath from a case of pneumonic influenza."

Personally I often use a simplified method of prophylaxis by cleansing the nostrils with cotton-wool dipped in a 50 per cent. solution of iso-propyl alcohol, which Christianssen [3] found to produce complete disinfection in one minute in a series of interesting experiments on bacteria.

I am, Sir, yours faithfully,

MARK CLEMENT.

Department of Physiology, Middlesex Hospital, W.
Dec. 20th, 1927.

To the Editor of THE LANCET.

SIR,—Any treatment that will alleviate or cure this distressing state seems worth recording. Inoculations, given by themselves, are far from universal successes—for the simple reason that they are unable to cope with small deeply infected areas. It is my belief that in most of these cases there is a focus of infection that lights up the common cold and that this source of infection is almost invariably in the infected crypts of the tonsils, however harmless the tonsils may appear to the naked eye. Less commonly the source is purely nasal.

I have found the following method of treatment effective to an unusual degree. At weekly intervals I give the patient an inoculation of the three graduated doses of anticatarrhal vaccine as prepared by Parke, Davis and Co. With a Roger's fine crystal spray I get them to land half-a-dozen puffs from the spray on each tonsil morning and evening. A few puffs are put into each nostril also. The solution for the spray is a 25 per cent. solution of neoprotosil. The spray must be a very fine one, and very soon patients learn to become quite expert in its use, hitting the tonsils with a dexterity one would scarcely expect.

If the tonsils look red and the anterior pillars are injected, in two or three weeks these appearances clear up to a remarkable extent. The spraying is commenced with the first inoculation and kept up

[1] MacLeod: Physiology and Biochemistry in Modern Medicine, th edition, 1926.

[2] Lefèvre: Comptes Rendus, 1894, p. 604.

[3] Christianssen: Zeitschr. f. Physiol. Chem. 1918, cii., 275

regularly. Mothers very soon learn to do their children and children soon learn not to be afraid of the spray. I am convinced that the success of the method consists in the use of the inoculations plus the religious use of the spray at the same time. Inoculations are of little good if an untackled septic focus is lying in the throat ready at any minute to flare up; it is the neglect of treating this focus that brings about so much disappointment when vaccines are used alone. Enucleation, especially with children, is probably advisable in a large number of cases, but, for many reasons, one cannot always have this carried out with adults. With the above treatment I cannot recall a single case where, if the cure has not been completely successful, there has not been sufficient alleviation to satisfy the patient. Four other things I ask them to do—to sleep always with open windows, summer and winter, to bathe the chest and neck every morning with cold water, to take a diet where the vitamin element is balanced and a sufficiency of vitamin B made certain, and, finally, to learn how to breathe.—I am, Sir, yours faithfully,

A. GRAHAM-STEWART.

Ulster-place, Harley-street, N.W., Dec. 14th, 1927.

SACRO-ILIAC SUBLUXATION.

To the Editor of THE LANCET.

SIR,—An annotation on this subject in your issue of Dec. 17th suggests that international discussion might enlighten the discrepancies of surgical experience. You quote Sir Robert Jones and Dr. R. W. Lovett as outspoken sceptics, but in Vol. I. of the former's "Orthopædic Surgery of Injuries" we find a short chapter from the pen of Dr. F. C. Kidner, late consulting orthopædic surgeon, A.E.F., dealing with disturbances of the lumbar spine and pelvic girdle, and in this chapter the diagnosis and treatment of partial sacro-iliac dislocation is considered. Your annotation remarks on the apparent disproportion between the means of treatment adopted and the importance of the massive structures concerned, adding, "It is very hard to see how adhesive strapping, no matter how tightly applied to the skin, can exert any serious control over the sacro-iliac joint, even though it encircles the whole pelvis. Nor can we expect a spinal support or pelvic corset to be any more effective." Admittedly this would be so if we expected by such support to be able to relieve the weight-bearing function of the sacro-iliac joint. This, however, presupposes a downward displacement of the sacrum between the ilia, which few of those who have studied the problem would expect. The usual strain of this joint is a rotation strain, and it seems to me not irrational to suppose that a light support might be effective in relieving a strain of this kind. Even if the strain advances to subluxation, we should still not expect the rotation, forward or backward, of the ilium on the sacrum, to be recognised readily by ordinary examination, while the changes visible in a front-to-back X ray photograph would be negligible.

Is it not possible that the discrepancy in opinion arises from the fact that no detailed method of examination for this injury, or of this region, has been published, and that, therefore, the condition is frequently missed? There are countless patients who complain of pain in the back, sometimes traumatic, sometimes with no history of injury. How many surgeons (or physicians for that matter) are in a position to state confidently the cause of the pain? What, for instance, is meant by saying that a patient has chronic lumbago, or recurring sciatica? Can we take either diagnosis to mean anything more than that these patients have chronic pain in their back or leg? Then, too, what is traumatic lumbago? It is often held that this condition is due to a torn muscle. How often, when this condition is presupposed, is ecchymosis seen on the surface at any period of the trouble, and how often is the diagnosis made as the result of palpating the actual gap where the tear has taken place, or, failing this, by the only other possible method of diagnosis—namely, electrical stimulation of the muscles until pain is reproduced by causing the torn muscle to contract?

The following case came under my notice only last week. A nurse, while making a bed, suddenly felt something "give" in the small of her back; the pain was excruciating, and she was unable to stand upright and had to go to bed immediately. Under gas, a forward torsion strain was placed on the sacro-iliac joint, strapping applied, and the patient was immediately able not only to stand upright, but to walk across the room without pain. No manipulation could cure a torn muscle in five minutes, and I cannot conceive that the condition was hysterical or imaginary. If it was physical it can only be explained by assuming that the patient had sustained a locking of the sacro-iliac joint from a backward torsion strain, which was relieved by placing upon the joint a forward torsion strain. It is of course perfectly true, as your annotation implies, that the structures controlling this joint are immensely strong and firm. This, however, applies only to the structures which control the weight-bearing function of the joint. It does not apply to those which control the rotation, backwards and forwards, of the ilium on the sacrum.

I am, Sir, yours faithfully,

Park-crescent, London, W., Dec. 21st. JAMES MENNELL.

MERCUROCHROME INTRAVENOUSLY.

To the Editor of THE LANCET.

SIR,—I have had no trouble in several cases which have received doses of 5 mg. in 1 per cent. solution per kilo of patient's weight; but I have not repeated the administration oftener than twice a week. In a case of what is almost certainly infective endocarditis lenta or subacuta, a boy weighing at first about 60 lb. and now 50 lb., I have given three injections of 15 c.cm. of 1 per cent. solution, or rather more than 6 mg. per kilo, with no ill, and I regret to say no more beneficial, effect than a temporary reduction of temperature.

I am, Sir, yours faithfully,

JOSEPH O'CARROLL, M.D., F.R.C.P.I.

Dublin, Dec. 21st, 1927.

To the Editor of THE LANCET.

SIR,—I have had a small experience of mercurochrome which may be of some value. In my series of 29 cases it was not given for the treatment of acute infection but was used after operation with a view to preventing the onset of post-operative pneumonia. These cases were under my care during the latter end of 1926 and the early part of 1927. Young and Hill used up to 8 mg. per kg. of body-weight in a child and 6·8 mg. per kg. in an adult (Jour. Amer. Med. Assoc., March 1st, 1924, p. 669). My patients were all adults and I gave what I considered a safe dose for all patients, 20 c.cm. of a 1 per cent. solution. This was injected intravenously immediately following the operation and 10 c.cm. of a similar solution were given two days later. I treated 29 patients in this manner and in 10 of these there was a reaction, which occurred in the majority of cases after the second injection only. This suggests that the drug may be cumulative in action. The most common reaction consisted of a rigor with a rise of temperature to about 102° F. In two cases the reaction was slight, one patient complaining of a pain in the chest, and the other showing a small rise of temperature. In two the reaction was severe. One man had hæmaturia and passed blood in the stools, while another had a severe rigor, headache, cyanosis, and collapse.

From my experience I should advise the dosage and the increased dilution with repeated injections as advocated by L. S. Dudgeon.

I am, Sir, yours faithfully,

G. P. B. HUDDY, M.S., F.R.C.S.

The Hospital, Dudley-road, Birmingham,
Dec. 19th, 1927.

THE PRESENT POSITION OF THE VOLUNTARY HOSPITALS.

To the Editor of THE LANCET.

SIR,—I am loth to disturb the Christmas peace by controversy, so I pass without the severe criticism it deserves Dr. Graham Little's offensive assumption that humanity and the spirit of service are only to be found in the voluntary hospitals; also his other amazing statement that the "highest pride" of the Poor-law hospital or infirmary is in affiliation to the voluntary one.

But what Dr. Little misses out is more important than what he puts in. It is not sufficiently realised that the voluntary hospitals only admit a limited number of strictly selected cases out of the much larger number needing hospital treatment; and that the discrimination is not made only on legitimate, clinical grounds but on financial, social, administrative, and even less creditable grounds. Innumerable cases are rejected whose need is nevertheless great, and who could and ought to be admitted if the voluntary system really met the public need. Secondly, a great deal of very bad treatment is done in out-patient and casualty departments with disastrous results. Some of these cases would be unbelievable if one had not seen them. The causes must be, I suppose, shortage of beds and lack of courage or of clinical judgment to tell the patients to get into hospital elsewhere at once. The question really is not "What do the voluntary hospitals do?" but "What do they leave undone or do badly?" It is unnecessary to praise their *best* work; it is probably the best in the world. As centres for teaching and research and in-patient treatment for the limited and strictly selected classes with which they deal, they stand very high. But what has to be looked at is whether they deal, and, if not, whether they can be reorganised so as to deal effectively with the great mass of patients. That A is treated with all the resources of modern skill is no use to B, who is excluded. And if the voluntary hospitals cannot cope with the mass, then other organisations must take up the work and will inevitably try to make themselves as efficient and up to date as they can. It is useless to complain of competition from State-aided or rate-aided or any other form of publicly provided hospital. These must have developed, even if they had been unwilling, because the cases are there needing treatment, and the voluntary system cannot, or at least at present does not, treat them.

I am, Sir, yours faithfully,

J. C. MUIR,
Medical Superintendent, Whipps Cross Hospital,
Dec. 24th, 1927. Leytonstone, E.

To the Editor of THE LANCET.

SIR,—Dr. Graham Little's defence of the voluntary hospital system will be, undoubtedly, pleasant reading for the managers of these institutions; but his conclusions are by no means convincing to many of us who have been for years working under this system. I would like to draw his attention to the problem of the isolated provincial hospitals which he has not considered so far in any detail.

It is my privilege to practise surgery in an industrial area with a population of upwards of 250,000, and there are in the entire district only 190 voluntary beds. It will be granted that this is a totally inadequate supply for such a large number of people; consequently, there is an increasing waiting list and a great number of complaints. The medical staff at the principal hospital is now rarely called upon to treat the really sick poor, the great majority of the patients dealt with are State-insured persons including, of course, the better-paid artisans. The others are a very various collection, including small tradesmen and their dependants, small farmers, salaried officials, and clerks who formerly never dreamt of availing themselves of the charity. In fact, if they had done so there would have been a great outcry from the profession as a whole on the old theme of hospital abuse.

This crowd of actual and prospective patients is gradually being increased by the activities of committees of what are now known as workmen's contributory schemes under which money is collected at most mills and workshops to the extent of 1*d.* or 2*d.* per week from the wages of the working people without any distinction as to the individual employee's financial position. The money is handed over to the hospital authorities quarterly on certain general conditions being granted—namely, that the workmen's committee is adequately represented on the board of management and the right of free maintenance and medical treatment for all subscribers. These schemes are growing fast and have undoubtedly saved many hospitals from serious financial trouble, but it is obvious the sick poor are no longer the real object for the service of the charity for they are surely and certainly being crowded out and must eventually seek more and more frequently admittance to the Poor-law infirmary, where curiously enough they are treated by a paid medical and surgical staff.

An inefficient system which cannot deal with more than 20 per cent. of the work it ought to do after years of effort would have been in ordinary circumstances scrapped or thoroughly revised long ago. There is a most urgent need for more hospital beds, and I feel certain that the quickest way to obtain these is to combine the services of the Poor-law and the general hospitals in the provincial areas, and let them be governed by a representative board of the two authorities. By this means considerable overlapping would be prevented and the cost of providing more hospital accommodation would be deferred for a time. This is not a drastic measure of reorganisation; but the chief difficulty will be the question of remuneration of the medical staff. Surely this could be met by percentage deductions as suggested by the British Medical Association from contributory schemes, and it seems to me only just that the National Health Insurance Committees and Insurance Societies, whose sick and injured fill the hospitals in ever increasing numbers, making more calls on the skill and time of the medical staffs, should also contribute their quota.

I have read Prof. Berry's interesting comments (THE LANCET, Dec. 24th, p. 1364) with great pleasure and heartily endorse his views on American and Continental hospitals. The genius of the Americans, especially for organising, has provided them even in the smaller cities with excellent hospitals which are run on a sound financial basis with facilities for modern treatment, investigation, research, and after-care which are not possible in the average provincial hospital at home chiefly on account of want of method and lack of funds. When I was in America the idea of the unprovided-for middle classes in England working out their own salvation by establishing hospitals at special centres on similar lines or on an insurance basis appealed to me as a feasible plan, and one that with the coöperation of the medical profession would meet with success, not to mention the great benefit it would confer on a section of the community who have in the past received insufficient consideration. I am, Sir, yours faithfully,

Burnley, Dec. 27th, 1927. JOHN H. WATSON.

AN OPERATION FOR THE ALLEVIATION OF DEAFNESS.

To the Editor of THE LANCET.

SIR,—Major Vincent Nesfield's article on this subject (THE LANCET, Dec. 24th, p. 1338) is most interesting to me. Had he been an aural, and not an ophthalmic, surgeon he might have known of the mastoid operation I introduced in 1906—of which thousands have been performed—on practically the same lines as the operation he now outlines. My operation, also, was outlined in your issue of August 11th, 1906; the ten cases there described (all that had then been performed) were exhibited

by me at a meeting of the British Laryngological, Rhinological, and Otological Association (the Royal Society of Medicine was not then in existence). Their perforated drums had healed and their hearing was so good (some absolutely perfect) that I received unanimous congratulations. The report of this meeting was published in your issue of Dec. 15th, 1906.

The great ear hospital at The Downs, Sutton, has, at this moment, 150 operations of this kind now in the wards. I was operating there two evenings ago. I hope when Major Nesfield exhibits his cases—as, of course, he will—that the results will justify his audience in also giving congratulations, for there are too many deaf people in this country.

I am, Sir, yours faithfully,

CHARLES J. HEATH, F.R.C.S. Eng.,
Consulting Aural Surgeon, The Downs Hospital; late Surgeon, Throat Hospital, Golden-square, W.

Dec. 26th, 1927.

To the Editor of THE LANCET.

SIR,—I have read with a degree of interest Mr. Nesfield's account of his operation for the alleviation of those cases of deafness which, he says, are caused by obstruction of the Eustachian tube or tubes. The first point that occurs to me in his writings, as indeed I anticipate it does to others interested in aural surgery, is whether Mr. Nesfield has previously to his operation made an attempt to open the closed Eustachian tubes with a bougie and catheter. If Mr. Nesfield has not on all occasions done so, I say his operation is an unjustifiable one; on the other hand, if he has done so, then his operation may possibly be justified. The fact must not be lost sight of that those long-standing cases of middle-ear deafness due to catarrh spreading up the tubes do often improve considerably after several treatments with the catheter and bougie together with suitable treatment of the nasal-pharyngeal catarrh.

I am, Sir, yours faithfully,

ARTHUR M. BARFORD,
Aural Surgeon, Royal West Sussex Hospital and Portsmouth and Southern Counties Eye and Ear Hospital.

Chichester, Sussex, Dec. 27th, 1927.

TOXÆMIAS OF PREGNANCY.

To the Editor of THE LANCET.

SIR,—I would find it more easy to reply to the letter of Dr. J. N. Cruickshank, Dr. J. Hewitt, and Dr. K. L. Couper in your issue of Dec. 24th if I knew precisely the facts they definitely ascertained from the two lines of inquiry referred to in my letter. I can assure them that I had carefully noted the statements in their monograph as to (*a*) a full clinical examination having been made, (*b*) cases of infection of urinary tract having been included, and (*c*) their opinion as to the importance of protein in the dietary—an opinion which I fully share. They now tell us that the first statement necessarily implied a careful bacteriological examination of the urine, which failed to reveal any bacilluria, pyuria, or—but this is not specifically stated—bacteriuria. It would enable me to define my position in the matter more precisely if they will indicate clearly whether I am right in concluding that in a series of 200 consecutive cases of declared acute toxæmias in pregnancy the bacteriological examination of the urine gave a negative result, as presumably in the control cases, and if so, they will indicate the precise nature of the technique employed in the bacteriological examination. A further essential is a statement of the number and nature of the cells revealed by the careful examination of a centrifugal specimen of the urine, this being so frequently an indication of reaction in the urinary tract and the elimination of bacteria from the system by the kidney, this condition being not necessarily correctly described as a renal infection.

It is clear from their letter that we may not be at one in regard to definitions. Thus they state that they have not noted "any indication of intestinal putrefaction as we understand the term." It would enable me to define my position on this point if they will indicate what evidence, if any, can be obtained from the stools by the use of the unaided senses, indicating an excessive degree of putrefaction in the lower alimentary tract, and whether in the 200 cases investigated the odour of the intestinal contents as voided was not extremely objectionable.

The interesting points raised in their letter raise issues of far-reaching interest and importance in other fields of medicine. A few months ago I asked a gynæcologist of wide clinical experience what proportion of gynæcological cases commonly met with owed their origin, primarily and mainly, to a faulty state of the lower prima via, and he replied at once anything over 90 per cent. If this opinion is even approximately correct, it indicates the necessity of more attention being directed to the subject on the lines indicated in my letter. But this point can be more usefully elaborated when the authors have given us the additional information desired.

I am, Sir, yours faithfully,

Edinburgh, Dec. 27th, 1927 CHALMERS WATSON, M.D.

SPINNERS' CANCER.

To the Editor of THE LANCET.

SIR,—Dr. Robertson, in support of his view of the causation of this form of occupational cancer, has found evidence in the fact that in the United States spinners use belts to keep up their trousers rather than braces as in Lancashire, and that the trouble has not so far been reported from the States. When in the States early this year I set inquiries afoot and later discussed the subject with the American statistician, F. L. Hoffman. He now writes to me (dated Dec. 9th) as follows:—

"I have at last obtained definite information concerning mule spinners' cancer in the United States. As the result of a special analysis of all death certificates of scrotal cancer for the United States registration area for 1926, I have six records, three of which give the occupation as mule spinners and three as textile workers. The matter will be followed up later."

The bearing of this important information upon the causation of the disease will be clear to your readers. I am, Sir, yours faithfully,

EDGAR L. COLLIS.

Welsh National School of Medicine, Cardiff,
Dec. 24th, 1927.

ISOLATION OF MEASLES.

To the Editor of THE LANCET.

SIR,—It is perfectly safe for an *uncomplicated* case of measles to mix freely in society 14 days after the first appearance of the rash, convalescence being satisfactorily established. My reason for writing this letter is that I now find myself compelled to keep a patient at school over Christmas, because the medical man who attends her family asserts that it is unsafe for the child to return home till three weeks have elapsed from the first appearance of the rash. All the periods during which uncomplicated cases of the common exanthemata remain infectious are definitely known, and it is important that members of the medical profession should realise this fact. The data have been drawn up and printed by the Medical Officers of Schools Association, in consultation with epidemiologists of repute, and other leading consulting physicians, *and they have stood the test of time.* I say this without hesitation after more than 20 years' experience as medical officer of a public school. Since apparently there are still practitioners who are unacquainted with what should be by now a matter of common knowledge, it seems high time that the rules adopted by all our public schools should be circularised to the profession by some central authority such as the General Medical Council.

I am, Sir, yours faithfully,

F. J. CHILD, M.D. Camb.,
A Medical Officer of Winchester College and St. Swithun's Girls School, Winchester.

Dec. 26th, 1927.

TWO DISCLAIMERS.

To the Editor of THE LANCET.

SIR,—I find that my name has been used for advertisement by a well-known firm of woollen manufacturers. This advertisement is based on a health article which appeared in the daily press, part of which was appropriated without my knowledge or sanction. Apparently, all I can do is to notify this firm that I object to my name being used for advertisement purposes. This was done when the said advertisements first appeared. I would like my colleagues to know that I am guileless in this matter.

I am, Sir, yours faithfully,

ESTELLE COLE, L.R.C.P. & S. Edin., &c.

Harley-street, W., Dec. 27th, 1927.

To the Editor of THE LANCET.

SIR,—As medical officer I wish to disclaim responsibility for the extravagant claims appearing in the lay press on Dec. 21st and other dates *re* a case of encephalitis lethargica treated at the Burton-road Poor-law Institution, Lincoln. These reports were acquired by the press entirely from extra-medical sources. I am, Sir, yours faithfully,

Lincoln, Dec. 23rd, 1927. JAMES LYONS.

THE PLAGUE OF WRITING.

To the Editor of THE LANCET.

SIR,—I hear increasing complaints from my fellow practitioners of their time being so much occupied by the filling in of forms that the curing of their patients is seriously hampered; this increase in office work is due to several causes, the chief of which are the growing inroads into general practice made by central and local government departments and to a less extent by the enterprise of the daily press and others in organising insurance schemes against illness and accident. After an accident the patient's first thought is how much he can get from his insurance, and this necessitates one or more, usually several, elaborate reports being filled in by his medical attendant; if called upon to pay for these reports the patient is often most indignant. As regards national health insurance, in the beginning no complaint could be made of unnecessary clerical work being put upon the doctors; in fact it may be regarded as a triumph, at any rate for a Government department, that the essential certification had been reduced to one printed form; but of late a change has come over the scene. The increasing claims for additional benefits—e.g., ophthalmic, dental, surgical appliances, &c.—all require "extra" certificates which must be supplied free of charge; letters are required, quite rightly, by voluntary hospitals, before panel patients can be seen by their staffs; tuberculosis and other clinics ask for "a letter from the doctor," and now the Ministry of Health takes a hand and requires on Forms G.P. 17 and G.P. 36 detailed reports on all tuberculous patients on the practitioner's panel list.

There is also the vexed question of certificates covering absence from school through illness. The education authorities require such certificates, but will not pay for them—the parents cannot always afford to do so—the result is that some doctors refuse to sign any; others sign them for nothing, while yet others sign on payment of a fee, each course of action being open to grave objection. In addition to the above there are the signing of pensions, unemployment, and old-age certificates, for which, out of the long list of legally respectable people who may endorse them, it is usually the doctor who is the most easily accessible. A charge is seldom made for such services. Even in such simple matters as vaccination there is a great deal of unnecessary clerical work to be done. Before a public vaccinator can collect his fee for a vaccination performed at the home of the child he has to supply no less than 48 items of information on six different forms. It is, indeed, no wonder that the profession views any increase of clerical work with anxiety. I am, Sir, yours faithfully,

Dec. 15th, 1927. AN UNWILLING SCRIVENER.

Obituary.

ALEXANDER BLACKHALL-MORISON, M.D. EDIN., F.R.C.P. LOND.,

WE regret to announce the death of Dr. Blackhall-Morison, which occurred suddenly in London on Dec. 23rd, in the seventy-seventh year of his age.

Alexander Morison, who took later the additional name of Blackhall for family reasons, was the son of the late Alexander C. Morison, a medical officer of the H.E.I.C.S., and the grandson of Alexander Morison, the well-known Edinburgh physician and psychologist, in whose honour the Morison Lectures of the Royal College of Physicians of Edinburgh were founded. He received his medical education at the University of Edinburgh, where he graduated as M.B., C.M. in 1872, taking the M.D. degree with gold medal in 1878. In the previous year he had obtained the diploma of Member, and in 1889 was elected F.R.C.P. Edin. During this period he took out post-graduate courses in Berlin and Würzburg, so that when he entered upon general practice in the north of London he was highly equipped.

For upwards of 20 years he remained in general practice, during which time his careful writing and his communications to medical societies indicated his interest in cardiology. In 1892, having obtained the diploma of M.R.C.P. Lond., he was appointed to the staffs of the Royal Northern Hospital and of the Children's Hospital, Paddington Green, being already physician to the St. Marylebone General Dispensary. He continued his regular writing on such subjects as angina pectoris, heart failure, and the neuro-muscular factors in heart disease, and about this time joined the staff of THE LANCET, and was for some ten years a regular editorial contributor, while under his own name he published in our columns many original articles dealing with numerous cardiological points. Some of these articles, notably a series dealing with cardiac pain, were published in 1914 under the title Sensory and Motor Diseases of the Heart, and in this volume he set out very clearly his views on the nature of cardiac sensibility and motion, confessing himself an admirer of the revolution in cardiac therapeutics brought about by Mackenzie's work, while remaining the convinced disciple of the classic authorities—an attitude that brought him into frequent controversies. In 1897 he was appointed Morison Lecturer at the College of Physicians of Edinburgh, the circumstances being complimentary alike to his clinical work and to his pedigree, for a hundred years previously the first Morison Lecture on mental disease was delivered by his grandfather. He was elected F.R.C.P. Lond. in 1903.

His views, based on his own experience in general practice, of the alterations in the life and status of the practitioner that would follow upon the National Insurance Act were uncompromising; he took a strong line in opposition to panel practice, was elected joint president with Prof. William Russell of the National Medical Union, and on the nomination of the Union stood unsuccessfully for a seat upon the General Medical Council as a Direct Representative.

Blackhall-Morison was a man of deep convictions, whether in the details of therapeutics or the principles of practice, and a strong champion of the dignity of medicine.

THE LATE DR. J. EXLEY.—Dr. John Exley, of New Wortley, Leeds, who died on Dec. 8th, at the age of 62, had been in failing health for some time. He had intimate and family associations with Leeds, and received his professional education at the Yorkshire College. Qualifying as M.R.C.S. in 1887 he settled at once at New Wortley, and practised there until his death. He at one time held several public medical appointments, including those of medical officer in the Bramley Union and public vaccinator for the New Wortley District. He was also medical officer of the Leeds Prison at Armley for about 25 years, and was a justice of the peace, serving on the city council from 1920 to 1923. He leaves a widow, a married daughter, and a son, Dr. C. J. G. Exley, of Leeds.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS

NURSING HOMES (REGISTRATION) BILL.

ON the order for the consideration of the Lords' amendments to the Nursing Homes (Registration)Bill, Mr. CHAMBERLAIN, Minister of Health, on Thursday, Dec. 22nd, moved to disagree with the amendment, which he said would place on the Minister the responsibility of the inspection of Christian Science houses. These houses were not nursing homes as that term was generally understood, and he held that the Minister of Health ought not to take responsibility for them.

The motion was agreed to.

HOUSE OF LORDS.

TUESDAY, DEC. 20TH.

THE Mental Deficiency Bill passed through Committee without amendment.

Nursing Homes (Registration) Bill.

Viscount GAGE, in moving the second reading of the Nursing Homes (Registration) Bill, said that it aimed at securing a better standard for nursing homes from the point of view of structure, management, accommodation, and staffing.

Viscount HALDANE said that while he had criticisms to offer in regard to certain provisions of the Bill he thought it was an extremely valuable measure and that it would be a misfortune if it failed to pass into law. Legislation was needed to raise the level of these nursing homes to a point which was compatible with safety.

Lord DAWSON said that there was by no means universal approval of the Bill. On the contrary, there were divers opinions in regard to it among the laity and the professional men who would have to carry out its provisions. The justification for the Bill was the report of a Committee of the House of Commons which disclosed serious abuses concerning certain nursing homes in various parts of the country. Anyone who had studied that report sufficiently must recognise that there were abuses which might justify action on the part of the Government. So far as the improvement of nursing homes from a professional point of view was concerned he was sceptical as to whether it was possible to improve them by any system of inspection. The real way to secure improvement was to set up proper institutions and buildings for the care of the sick. In so far as they did that the more inefficient nursing homes would cease to exist. The Bill gave powers of an extensive character, and those powers should be used with great discretion or they might lead to intolerable tyranny. He feared that there might arise a pettifogging type of inspector who would do more harm than good. One incidental effect of legislation of this kind would be that they would put the medical profession under the power of local authorities, and that would tend to promote the municipalisation of medicine in this country. He could understand people who were in favour of a State medical service voting for this Bill. He was in favour of setting up a health committee or authority which would correspond to the education committee or authority. That committee would deal with the health services and would bring the official and unofficial sections of the profession together. The case for the Bill was that it would prevent the abuses which were disclosed before the Select Committee.

Earl RUSSELL strongly criticised the clause dealing with Christian Science homes, and he protested against the action of the Minister of Health in suggesting that these homes should be called Christian Science Houses, thus advertising that dreadful religion.

The Marquess of SALISBURY, in reply, said that many of the points raised in the debate were committee points, and no pressure would be brought to bear on their lordships in regard to any amendments they might bring forward. In reply to Lord Dawson he pointed out that if they were to have control of any sort they must have inspection.

The Bill was read a second time.

WEDNESDAY, DEC. 21ST.

On the motion to go into Committee on the Nursing Homes (Registration) Bill,

Lord CHARNWOOD asked if it would not be possible for the Government to bring the Bill in afresh in the early days of next session.

Earl RUSSELL supported the suggestion.

Viscount HALDANE said he was most anxious to get nursing homes registered and he was not prepared to lay the Bill aside merely for minor considerations.

The Marquess of SALISBURY, Lord Privy Seal, said the case for protest against this method of legislation was overwhelming. It gave him great concern that year after year legislation was scamped because of the difficulties with which their lordships were confronted. If there was a very considerable feeling that the Bill should be postponed he would not resist it, but he would very much regret it.

The House then went into Committee on the Bill, the Earl of KINTORE in the chair.

On Clause 7 (Power of the Minister to exempt Christian Science Nursing Homes),

Viscount FALMOUTH moved to add a new subsection to provide that

> The Minister might at all reasonable times inspect any nursing home to which the clause applied, and might refuse exemption or withdraw exemption on the ground that the provisions of paragraphs (*a*), (*b*), or (*e*) of the proviso to subsection (3) of Clause 1 were not complied with.

Earl RUSSELL said there might be a case for granting exemption from the provisions of the Bill, and particularly the medical provisions, to a body which did not believe in medical treatment, but he could not see why it should be limited to one particular sect. The American sect founded by Mrs. Eddy was not the only one which held these peculiar opinions about medical attention. He therefore proposed to move later that Clause 7 be deleted and that the following clause be inserted in its place :—

> The Minister of Health may grant exemption from the operation of this Act in respect of any nursing home which he is satisfied is being carried on without medical or surgical treatment. Such exemption may be complete or partial, and shall remain in force for one year. No order of the Minister shall exempt a nursing home from the requirements of any bye-law made under Section 4 (1) (*b*)—which requires a report to be made of any death in a nursing home. An exemption granted under this section in respect of a nursing home may at any time be withdrawn by the Minister if it appears to him that the conditions have changed.

Viscount ASTOR said that unless some exemption were granted it would be impossible for Christian Science institutions to be maintained, and it was held in the House of Commons that that would be illogical and savour of persecution. As far as the Christian Science body were concerned, they would be ready to accept this amendment. They would welcome a form of inspection.

Viscount HALDANE said the question was whether they were to have this Bill or not. He was anxious that it should pass. He was as far away from Christian Science as Earl Russell could be, and did not believe in any of these exemptions.

Earl BEAUCHAMP supported Earl Russell's amendment.

Viscount GAGE, Lord in Waiting, speaking for the Ministry of Health, said that the Minister of Health felt that it would not be in accordance with the principles of religious tolerance to refuse this exemption clause. The Minister was prepared to make it perfectly clear that the whole object of listing these houses was to take away from the public any possibility of their imagining that these houses had any State supervision at all except for the irregularities for the information of which the Minister was relying on the Christian Science movement. If this clause were omitted Christian Science houses would be extinguished. The number of such houses must be very small, and it could not be contended that they would be likely to compete on any substantial scale with ordinary nursing homes.

The Marquess of SALISBURY, in reply, said that it would be impossible for the Government to accept an amendment which so radically altered the clause as did that of Earl Russell. That amendment would make it necessary for the Minister of Health to authorise any home which he was satisfied was being carried on without medical or surgical treatment. Such words were impossible. The Government had stretched a point to meet the conditions of the Christian Science sect, but Earl Russell's amendment was really like a condition in "Alice in Wonderland." He (Lord Salisbury) would not resist Lord Falmouth's amendment, but if the House of Commons refused to agree with it he could not pledge the Government to insist upon it.

Viscount FALMOUTH'S amendment was agreed to.

Earl RUSSELL then moved an amendment to substitute for Clause 7 a new clause on the terms which he had already stated to the House.

The amendment was rejected by 28 votes to 14 and the clause as previously amended was agreed to.

The remaining clauses of the Bill were agreed to and the Committee stage was concluded.

The Bill was then read the third time and passed.

THURSDAY, DEC. 22ND.

Viscount GAGE moved that the House do not insist upon their lordships' amendment to the Nursing Homes (Registration) Bill placing on the Minister of Health the responsibility of the inspection of Christian Science houses.

The motion was agreed to.

Prorogation and Royal Assent.

A Royal Commission was held for the purpose of giving the Royal Assent to a number of Acts passed during the session, including the following:—The Mental Deficiency Act; the Landlord and Tenant Act; the Nursing Homes (Registration) Act; the Medical and Dentists (Amendment) Act; and the Royal Edinburgh Hospital for Mental and Nervous Disorders Order Confirmation Act.

The Lord Chancellor read the King's Speech proroguing Parliament until Feb. 7th, 1928.

HOUSE OF COMMONS.

TUESDAY, DEC. 20TH.

Committee on Vaccination.

Mr. DAY asked the Minister of Health on how many occasions meetings had been held by the Committee on Vaccination which was appointed last year, and whether, in view of the recent outbreaks of small-pox, he could take steps to hasten the report.—Mr. CHAMBERLAIN replied: The answer to the first part of the question is 30. As regards the second part I understand that the Committee are now considering their report.

Sick and Disablement Benefit.

Mr. ROBINSON asked the Minister of Health the number of persons aged 65 or over who would cease to be eligible for sick or disablement benefit after Jan. 2nd, 1928, and if he could furnish the numbers in receipt of sick benefit and disablement benefit separately.—Sir KINGSLEY WOOD replied: The number of insured persons who, by reason of having attained the pensionable age of 65, will cease to be entitled to sickness and disablement benefits under the National Health Insurance Acts on Jan. 2nd next is estimated at 355,000. It is impossible to say how many will be actually in receipt of either benefit on Jan. 2nd next, but the numbers are not likely to exceed 25 per cent. of the whole.

Nutritive Value of Pure Milk.

Lieut.-Colonel ACLAND-TROYTE asked the Minister of Health the result of analytical tests of the food value of one pennyworth of average pure new milk against one pennyworth of tinned machine-skimmed milk, and what was the percentage of fat in an ordinary sample of the latter.—Sir KINGSLEY WOOD replied: As regards the chief nutritive constituents of milk other than fat rather more of these can be obtained for one penny from condensed skimmed milk than from ordinary milk; as far as energy value is concerned considerably more is supplied by condensed skimmed milk owing largely to the sugar which it contains. The poorness in fat, however, which amounts to about 0·5 per cent., renders this milk unsuitable for infant-feeding.

Purification of River Pollutions.

Mr. OTHO NICHOLSON asked the President of the Board of Education whether the Special Committee of Scientific and Industrial Research, appointed to investigate the purification of river pollutions, had discovered a practical commercial process for the purification of the effluent from sugar-beet factories.—Lord E. PERCY replied: I understand that it is not yet possible to say whether the working-scale experiments which are in progress under the supervision of the Water Pollution Research Board will lead to a complete practical solution of the problem referred to by my hon. friend.

Children Under 14 in England and Wales.

Mr. GRIFFITHS asked the Minister of Health the total number of children under 14 in Great Britain and Northern Ireland.—Sir KINGSLEY WOOD replied: The estimated number of children in England and Wales under 14 years at mid-year 1926 is 9,366,000.

Health Insurance Statistics.

Mr. BENJAMIN SMITH asked the Minister of Health the number of persons insured under the Health Insurance Acts and the number of children under 14 years of such insured persons.—Mr. CHAMBERLAIN replied: The number of persons insured under the National Health Insurance Acts in Great Britain on Dec. 31st, 1926 (including persons over 70 years of age) was approximately 16,265,000, made up of 11,024,000 men and 5,241,000 women. I have no information as to the number of children under 14 years of insured persons.

Mr. BENJAMIN SMITH asked the Minister of Health the number of persons over 60 and over 65, respectively, who were insured under the Health Insurance Acts, and the numbers of such categories who were employed in the mining industry, the shipbuilding industry, and the iron and steel trades.—Mr. CHAMBERLAIN replied: At the date of the last valuation of approved societies the number of insured members of such societies in Great Britain who were 60 years of age or over, was as follows:—

Age.	Men.	Women.	Total.
60–64	437,000	95,000	532,000
65–69	283,000	54,000	337,000
70 and over ..	230,000	40,000	270,000
Total	950,000	189,000	1,139,000

Figures are not available for any later date and I have no information as to the distribution of the numbers between the several industries.

WEDNESDAY, DEC. 21ST.

Analyses under the Sale of Food and Drugs Acts.

Dr. VERNON DAVIES asked the Minister of Health if, in his next annual report of the Ministry of Health, he would draw attention to the advisability of seeing that analyses, under the Sale of Food and Drugs Acts, should primarily be for the purpose of detecting adulteration in the common articles of diet amongst the poor, and that, where past experience showed an adulteration of over 5 per cent. of the samples analysed of these articles of diet, it would be of advantage to the public health if a larger number of samples were analysed.—Sir KINGSLEY WOOD replied: My right hon. friend will consider whether any advice can usefully be given in this matter.

Unvaccinated Persons in Prisons.

Dr. VERNON DAVIES asked the Home Secretary what was the usual procedure with unvaccinated prisoners in regard to vaccination in normal times and during the presence of small-pox in the district or prison.—Sir WILLIAM JOYNSON-HICKS replied: In normal times no special steps are taken except as regards convicts sentenced to penal servitude, who, unless they present good vaccination marks, are vaccinated before removal to the convict prison. During an outbreak of small-pox in the area in which a prison, whether a local prison or a convict prison, is situated, or in areas from which prisoners are received, it is the practice to vaccinate all prisoners who have not been previously vaccinated within recent years.

THURSDAY, DEC. 22ND.

Adulteration of Milk.

Dr. VERNON DAVIES asked the Home Secretary what was the number of prosecutions in the county of Nottingham for the adulteration of milk during the years 1924, 1925, and 1926, with the penalties imposed.—Sir WILLIAM JOYNSON-HICKS replied: In the county the figures were, prosecutions, 16, 11, 13; fines, £20 19*s.* 6*d.*, £17 16*s.*, £22. If the city of Nottingham and the borough of Newark be included the following are the additional figures: prosecutions, 17, 4, 10; fines, £12, £15 8*s.*, £9 10*s.* The figures of fines do not include costs ordered to be paid in addition.

Contributions to Health Insurance Fund.

Mr. DAVID GRENFELL asked the Minister of Health the amount of contributions to the Health Insurance Fund for the years 1924, 1925, and 1926, with the number of insured persons receiving benefit in each year and the total number of weeks for which benefit had been paid.—Sir KINGSLEY WOOD replied: The amount of contributions paid into the National Health Insurance funds in Great Britain for the years specified was in round figures: 1924, £27,000,000; 1925, £28,000,000; 1926, £24,500,000. Exact particulars are not available as to the number of weeks for which sickness benefit and disablement benefit were paid, or as to the number of persons in receipt of benefit for any year, as no occasion has arisen for requiring approved societies to keep such statistics. It may, however, be estimated that the total number of weeks of sickness represented by the amounts paid as sickness and disablement benefit in each of the years specified was, on a rough approximation, 26,000,000 weeks in 1924; 28,000,000 weeks in 1925; 31,500,000 weeks in 1926.

SWEARING FOR A HOSPITAL.—The Royal Free Hospital has adopted an "anti-curse scheme" as a means of raising money. Its helpers have been provided with 2000 collecting boxes into which their friends will be invited to drop a coin every time they use a "profane oath." Each collector undertakes to obtain £5, and a prize of £100 is offered to the collector who obtains the largest sum.

MEDICINE AND THE LAW.

Insanity by Inference.

IN an overwhelming proportion of cases a person who is found "guilty" on a charge of murder makes an appeal to the Court of Criminal Appeal. The defence is often a plea of insanity, and it seldom succeeds. But the unexpected sometimes happens; on Dec. 12th, in the case of R. *v.* Lloyd the Court of Criminal Appeal substituted a verdict of "guilty but insane" for a verdict of "guilty." Lloyd had been tried at Durham Assizes before Mr. Justice Roche for murdering a policeman. His defence at the trial was insanity. His military medical records showed that in 1916 he was removed from duty in the field in France suffering from exposure, exhaustion, and shock, and after that date grave reports were made of his mental condition. In September, 1925, he was described as having a childish mentality, and as being a-social, unstable, and emotional. In 1926 he was said to be a congenital mental defective. The dead policeman had somehow upset him, and Lloyd threatened "to swing for him." Mrs. Lloyd said he had always been a good husband, but that last Christmas he had attacked her with a rolling-pin without any cause; he had seized his father-in-law by the throat and afterwards had cried when told what he had done: sometimes it had taken six or seven men to prevent his injuring himself and others. At the trial the learned judge gave the jury a rather broad hint that if they found the prisoner "guilty" and accompanied their verdict with a strong recommendation to mercy, the usual consequences would not follow. He explained that the result of the recommendation would be a reference from the Home Office to himself as presiding judge, and he intimated that, if consulted, he would give a favourable opinion. In effect, as the Lord Chief Justice observed at the hearing of the appeal, he possibly led the jury to think that it would be better for Lloyd if he were found "guilty" of murder, and thus he possibly dissuaded the jury from finding the accused to be insane. The Court of Criminal Appeal, Lord Hewart concluded, was satisfied that Lloyd was insane when he committed the act charged against him; it therefore substituted for the verdict of "guilty" a verdict of "guilty, but insane," it quashed the death sentence, and ordered that the prisoner be kept in custody as a criminal lunatic.

This paradoxical trial gave fresh proof of the judicial distrust of medical evidence recently expressed by Lord Hewart when discussing the danger of allowing uncontrollable impulse to be a defence. On Lloyd's appeal counsel for the Crown stated that no medical witness had been called to prove insanity in the court below. "The evidence of ordinary witnesses," thereupon remarked Mr. Justice Avory, "is often better than that of experts on those matters." Remarkable inferences might be drawn from the case. In the first place the man's insanity was so obvious that, after merely reading the documents and apparently without examining him, the Lord Chief Justice would have been prepared to certify him as a lunatic. In the second place, the judge and jury at trial, equipped with the same information, failed to detect unsoundness of mind in spite of the advantage of having merely "ordinary," and not expert, witnesses.

Dangerous Drugs Acts: Prosecution of Medical Practitioner.

Notification is made from time to time in the *London Gazette* when the Home Secretary withdraws a medical practitioner's authorisation to obtain drugs within the Dangerous Drugs Acts. A few days ago a practitioner was brought before a bench of magistrates upon two charges of attempting to obtain drugs after his authorisation had been withdrawn. It was stated that on Oct. 27th and 28th he had written to London asking for morphine. According to the brief report of the case in the *Times* he informed the justices that he did not recognise the law, and that the proceedings, if allowed to stand, meant that he was debarred from practice; no authority other than the General Medical Council could, he maintained, so debar him. The magistrates bound him over to appear on Jan. 3rd upon the condition that he made arrangements to enter a home. Thus, if he undertakes to undergo treatment, no more will be heard of the charge upon which the proceedings were taken.

Without more detailed knowledge of the facts it is difficult to offer any comment. The accused practitioner apparently stated to the bench that the medical profession did not want the Act, and that every registered chemist said the same. No doubt it is true that the medical profession was reluctant to be hampered by restrictions; but the arrangement under which he was charged was an honourable compromise between the Home Office and the profession; it represents an agreement reached by all concerned in the endeavour to control the supply of drugs to addicts. The case of doctors seeking to obtain drugs for their personal use received special attention, and to a considerable extent the undesirability of bringing doctors before police tribunals was sympathetically recognised.

Tyndall v. *Alcock.*

In the case of damages for negligence, which has been reported upon briefly in our columns (vide THE LANCET, Dec. 17th, p. 1318) the Council of the London and Counties Medical Protection Society Limited, has decided to appeal against the adverse verdict.

Medical News.

UNIVERSITY OF OXFORD.—At recent examinations the following candidates were successful:—

B.M., B.CH.

Medicine, Surgery, and Obstetrics.—L. W. H. Bertie, D. H. Brinton, H. A. Byworth, A. W. Cubitt, H. P. Gilding, R. E. Havard, A. P. Kingsley, J. C. Neely, Ripley Oddie, E. M. B. West, A. L. Wilkinson, and Olive H. Lister.

Forensic Medicine and Hygiene.—O. A. Beadle, A. R. Bowtell, A. W. Cubitt, H. P. Gilding, R. E. Havard, A. J. Leslie Spinks, M. G. Pearson, A. E. Porritt, L. T. Ride, E. E. Swaby, E. M. B. West, and Margaret A. L. Herbertson.

Pathology.—W. J. Cotton, H. R. J. Donald, J. M. Gibson, H. M. Harris, R. S. Harrison, A. J. M. Melly, F. G. Parker, and R. L. P. Peregrine.

UNIVERSITY OF CAMBRIDGE.—At a congregation on Dec. 19th the following degrees were conferred:—

M.D.—P. Lazarus-Barlow.

M.B. and B.Chir.—†G. F. Oakden, A. S. Hollins, and W. S. Grove. † By proxy.

At recent examinations the following candidates were successful:—

THIRD EXAMINATION FOR M.B. AND B.CHIR.

Part I., Surgery, Midwifery, and Gynæcology.—M. C. Andrews, W. R. Ashby, D. H. Belfrage, W. V. Boyle, W. Buckley, A. J. W. Chamings, A. D. Charters, A. G. Clogg, S. F. L. Dahne, J. T. Dunkerley, J. L. H. Easton, J. Foster, L. Foulds, J. L. Franklin, T. O. Garland, C. P. Giles, J. M. Graham, R. A. P. Gray, A. C. Hampson, L. T. Hilliard, E. M. Hoskin, W. H. Hubert, E. R. Keeble, M. Koettlitz, T. E. Lamech, J. M. Lees, W. J. Lloyd, R. A. McCance, D. J. MacMyn, W. N. Mascall, W. E. Mashiter, J. B. Murray, R. L. Osmaston, E. A. E. Palmer, V. E. Palmer, T. N. Parish, R. E. M. Pilcher, G. W. Pimblett, L. J. Rae, E. G. Recordon, W. H. G. Reed, F. A. Richards, R. W. N. Robins, G. Rocyn Jones, J. I. Sapwell, S. W. Savage, M. P. Shackle, L. Shillito, F. Smith, T. R. Smith, W. Smith, E. T. C. Spooner, B. Stewart, G. S. Storrs, I. C. C. Tchaperoff, D. R. Tweedie, W. E. Underwood, and F. H. Ward.

Part II., Physic, Pathology, and Pharmacology.—G. M. Addison, R. G. Apthorpe, J. R. Armstrong, G. H. Barendt, W. J. H. M. Beattie, H. Bell, B. Blaxill, G. J. O. Bridgeman, W. A. Briggs, J. W. D. Buttery, I. Caley, A. D. Charters, G. C. Dewes, G. A. Eason, T. I. Evans, J. Foster, H. Girling, A. R. Glover, S. J. P. Gray, M. J. Harker, E. T. James, G. K. Kirwan-Taylor, M. E. Lampard, L. C. Lancaster, R. M. B. MacKenna, W. S. Maclay, R. W. L. May, G. C. Milner, F. J. Milward, J. K. Monro, W. J. Moody, D. F. Oakley, R. L. Osmaston, C. L. Potts, P. E. Pym, J. B. W. Roberton, J. W. Shackle, M. R. Sinclair, J. F. Stent, T. R. Stevens, D. R. Tweedie, S. Tyagaraja, K. H. Uttley, J. R. S. Webb, E. V. E. Whidborne, W. J. Wilkin, D. F. Wilson, R. M. Windeyer, C. G. Windsor, and E. C. Wynne-Edwards.

UNIVERSITY OF LONDON.—At examinations held recently the following candidates were successful :—

PH.D. EXAMINATION.

Biochemistry.—John Knaggs, Imperial College—Royal College of Science.

D.SC. EXAMINATION.

Veterinary Pathology.—Francis C. Minett, private study.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—At the Primary Examination for the Fellowship held from Dec. 6th to 17th, 169 candidates presented themselves, of whom 51 were approved and 118 were rejected. The following are the names and medical schools of the successful candidates :—

J. C. Anderson, M.B. St. And., F.R.C.S. Edin., St. Andrew's and Sheffield; M. Axford, M.B. Otago, Otago and Middlesex; L. H. Ball, M.B. Melb., Melbourne, Middlesex, and London; A. C. H. Bell, M.R.C.S., St. Bart.'s; Ilma B. S. Bingemann, St. Mary's; N. W. Bolton, M.B. Manch., M.R.C.S., Manchester; J. M. Buchanan, M.B. Melb., Melbourne and Middlesex; P. H. Charlton, Middlesex; A. M. Chaudhuri, M.B. Calcutta, Calcutta and St. Bart.'s; W. D. Coltart, St. Bart.'s; R. V. Cooke, M.B. Bristol, M.R.C.S., Bristol and Middlesex; S. G. Davidson, M.B. Aberd., Aberdeen and London; P. T. L. Day, Guy's; J. H. Doggart, M.B. Camb., M.R.C.S., St. Thomas's and London; G. C. Dorling, M.R.C.S., London; V. H. Ellis, M.R.C.S., St. George's and King's Coll.; W. R. Forster, M.S. Melb., Melbourne and Middlesex; Kathleen E. Gambrell, Lond. Sch. Medicine; A. D. Harper, M.B. Liverp., Liverpool; A. R. C. Higham, St. George's and King's Coll.; A. F. Hobbs, M.B. Adelaide, Adelaide and London; S. Howard, B.M. Oxf., Oxford, Adelaide, and London; T. G. I. James, M.B., F.R.C.S. Edin., Cardiff and St. Mary's; A. L. Johnston, M.B. Melb., Melbourne and Middlesex; J. A. Kerr, M.R.C.S., Birmingham and Middlesex; G. C. Knight, St. Bart.'s; J. C. Leedham-Green, B.A. Oxf., Oxford and London; D. L. Lewis, Cambridge; Muriel H. E. Long, King's Coll.; E. I. A. Macdonald, M.B. New Zealand, New Zealand and Middlesex; W. McKissock, King's Coll.; Moyra I. Macnaughton-Jones, Lond. Sch. Medicine; C. M. Marshall, M.B. New Zealand, New Zealand and Middlesex; I. D. Miller, M.B. Sydney, Sydney and Middlesex; D. K. Mulvany, King's Coll.; R. F. Phillips, M.R.C.S., St. Bart.'s; R. V. Powell, M.R.C.S., King's Coll. and St. Mary's; P. V. Reading, Guy's; E. Renbom, St. Bart.'s; R. F. Roberts, M.B. New Zealand, New Zealand and Middlesex; R. Rutherford, M.R.C.S., King's Coll.; C. D. Shapland, M.B. Lond., M.R.C.S., Univ. Coll.; C. K. Simpson, Guy's; F. E. Stabler, M.B. Durham, Durham; D. J. R. Steen, B.A. Camb., Cambridge and St. Thomas's; R. C. Tatham, M.R.C.S., Middlesex; H. Taylor and C. F. Watts, M.A. Camb., M.R.C.S., Cambridge and St. Bart.'s; R. A. K. Wiener, M.R.C.S., St. Thomas's and London; H. V. Wells, M.B. Lond., M.R.C.S., Charing Cross and St. Mary's; and F. G. Wood, M.B. Camb., M.R.C.S., St. Thomas's and London.

SOCIETY OF APOTHECARIES OF LONDON.—At examinations held recently the following candidates passed in the subjects indicated :—

Surgery.—K. D. C. Beckitt, Manchester and Charing Cross Hosp.; A. F. Briglmen, Edinburgh; L. J. Corbett, St. Mary's Hosp.; and H. S. Marks, Guy's Hosp.

Medicine.—K. E. Clarke, Charing Cross Hosp.; H. M. de Hartog, St. Mary's Hosp.; J. Miller, St. Bart.'s Hosp.; J. L. M. Wood, Sheffield.

Forensic Medicine.—L. J. Corbett and H. M. de Hartog, St. Mary's Hosp.; H. W. Maurer, Glasgow; and I. O. B. Shirley, St. Thomas's Hosp.

Midwifery.—S. A. Carr, Birmingham; G. L. McDermott, St. Bart.'s Hosp.; H. Tenenbaum, Nancy and London Hosp.

The Diploma of the Society was granted to the following candidates, entitling them to practise medicine, surgery, and midwifery: A. F. Briglmen, S. A. Carr, H. M. de Hartog, J. Miller, and J. L. M. Wood.

UNIVERSITY OF LEEDS.—Dr. C. W. Vining has been appointed to the newly instituted chair in Diseases of Children; Dr. J. T. Ingram has been appointed Lecturer in Diseases of the Skin; and Prof. J. K. Jamieson, dean of the faculty of medicine, has been nominated representative of the University on the General Medical Council.—The University Council has approved a revised ordinance for the Doctorate of Medicine. The ordinance provides that the degree will be given by examination, but preserves the old principle of the thesis, which may be substituted for part of the examination, or for the whole if the thesis is of exceptional merit.

At a congregation held on Dec. 20th the following degrees were conferred :—

M.D.—Désirée M. B. Gross† and J. Science.

M.B., Ch.B.—F. Grundy,* W. Hyman,* F. V. Allen, J. Benson, J. Caplan, M. M. Day, Mildred I. Ealing, W. Levi, Mary Lightowler, W. Milligan, and J. H. Phillips.

†With distinction. *With second-class honours.

The William Hey gold medal was awarded to Mr. David William Currie.

UNIVERSITY OF MANCHESTER.—The newly instituted John Henry Agnew Fellowship in the Diseases of Children has been awarded to Dr. Marguerite F. Johnstone, who will go to the Orthopædic Institute in Bologna for research with Prof. Putti.

UNIVERSITY OF LIVERPOOL.—At recent examinations the following candidates were successful :—

M.D.

R. W. Brookfield, Ethel Browning, Kathleen Edgecombe, and M. T. Morgan.

CH.M.

W. H. A. Dodd.

M.CH. (ORTH.).

L. O. Betts.

M.B. AND CH.B. (HON.).

Class II.—W. S. Creer and G. L. Roberts (distinction in Surgery), and S. L. Tunnicliffe (distinction in Medicine).

FINAL EXAMINATION FOR M.B. AND CH.B.

Part III.—A. B. Anderson, A. N. Cameron, D. E. Davies, Lilian W. Edwards, A. W. Green, Elsie A. Griffiths, I. Gurland, R. E. Jackson, T. Lotter, J. McWilliams, J. J. O'Donovan, G. W. Phillips (distinction in Medicine), J. W. Pickup, E. S. Smith, and E. F. Thompson.

Part II.—Ariel R. S. Deacon, H. F. Cohen, R. A. Furniss, J. E. Jones, Hilda M. C. McMahon-Garry, N. W. Roberts (distinction in Public Health), and Elizabeth B. Robson.

Part I.—W. W. Gerrard (distinction in Pathology), I. Kossew, and I. Lipschitz.

DIPLOMA IN TROPICAL MEDICINE.

H. S. Bawa, R. R. Evans, F. A. Khan, M. M. Khan, P. N. H. Labuschagne, W. J. Laird, B. F. Lewin, A. I. Meek, H. C. Mehta, M. V. Menon, H. V. R. Miller, S. N. Mokand, F. Murgatroyd, Pauline V. Murray, P. L. Nirula, D. O. Peters, J. H. Pottinger, G. V. S. Rodriguez, H. Singh, S. D. Sturton, and S. A. Wilkinson.

DIPLOMA IN TROPICAL HYGIENE.

P. N. H. Labuschagne.

UNIVERSITY OF BIRMINGHAM.—The following degrees were conferred on Dec. 16th :—

M.D.—*L. C. Hill, *A. V. Neale, J. A. Scott, and W. Summers.

M.B. and Ch.B.—Mary E. A. Allen, C. C. Cookson, L. H. Crossley, J. F. Duesbury, A. M. Ghaith, R. D'A. Gifford, D. V. Hague, S. K. Mansor, W. H. Shilvock, F. Smith, and R. W. W. Watson.

* With honours.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.—At a meeting of the College on Dec. 16th Mr. Alexander Miles, the President, in the chair, the 49 successful candidates out of 94 entered, who passed the requisite examinations between Sept. 26th and Oct. 5th, were admitted Fellows :—

Harold H. Barnett, Israel Blain, Paul D. Braddon, Clifford V. Braimbridge, John W. D. Buttery, Walter J. W. Close, Peter Connan, Carlton E. Cross, James T. Danis, Bessie P. Darling, Bernard V. Dunn, James T. R. Edwards, Herbert G. Furnell, Eric G. Gorstenberg, Richard E. Gibson, Ewen G. M. Gilchrist, James C. Gillies, William C. Gissane, William R. D. Griffiths, Eric W. Gutteridge, William G. Hazelton, William A. Hervey, Stuart W. Houston, Leonard W. Johnston, Mary Keith-Thompson, Gordon B. King, Frederick A. Lamb, George E. J. Lannin, George Lowe, Derrick J. Martin, Ralph Morton, Elayedath A. Menon, Kunnankalathmadhathil Rama Menon, Joseph MacGowan, Archibald A. MacKelvie, Donald C. MacRae, Shena MacVicar, Daniel J. P. O'Meara, Nadkorni Mangesh Rao, Samuel I. H. Reid, Cecil C. Ross, Kevin Bush, Albert E. Sawday, Hector M. Simpson, Harbhajan Singh, Cyril M. Smithies, Thomas W. Stephens, Norman Waddle, and Ai Sung Wong.

UNIVERSITY OF DURHAM.—At the Convocation held on Dec. 23rd the following degrees and diplomas were conferred :—

M.D.—C. N. Atlee.

M.B., B.S.—W. R. S. Good, Gerald Holmes, T. F. Jarman, W. A. Kirkpatrick, Eleanor Patterson, and V. B. Purvis.

B.Hy. and D.P.H.—E. L. Ewan, Iris M. Pratt, and W. S. Walton.

METROPOLITAN HOSPITAL SUNDAY FUND.—At the annual meeting of this fund at the Mansion House it was stated that this year's total of £86,935 was £114 less than last year's.

TUBERCULOSIS SOCIETY.—A meeting of this society will be held at 8 P.M. on Friday, Jan. 20th, at the house of the Royal Society of Medicine, 1, Wimpole-street, W. A discussion on the Work and Aims of Tuberculosis Care Committee and Kindred Agencies will be opened by Dr. G. Jessel, Dr. A. P. Ford, and Miss Lewis.

PEOPLE'S LEAGUE OF HEALTH.—A series of eight lectures on the Mind and What We Ought to Know About It is to be given by Dr. H. Crichton-Miller, Dr. E. D. Macnamara, Dr. R. D. Gillespie, Dr. Thomas Beaton, Sir Robert Armstrong-Jones, Dr. Edward Mapother, Dr. W. A. Potts, and Dr. A. F. Tredgold, beginning on Jan. 25th. A series of lectures on Nutrition in Health and Disease will start on Feb. 17th, the lecturers including Dr. Leonard Hill, Dr. Harry Campbell, Dr. L. J. Harris, Prof. V. H. Mottram, Prof. Winifred Cullis, and Dr. Eric Holmes. Particulars may be had from Miss Olga Nethersole at 12, Stratford-place, W. 1.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

WEDNESDAY, Jan. 4th.—5 P.M., HISTORY OF MEDICINE. Papers: Miss Tildesley: (1) A Case of Post-mortem Trepanning about Mid-Sixteenth Century; (2) Extensive Healed Skull Wounds, probably of Roman-British or Anglo-Saxon Period. A number of interesting anthropological specimens will be exhibited by permission from the Museum of the Royal College of Surgeons of England. Members are cordially invited to bring any specimens they may have in their possession which they think would be of interest. 8.30 P.M., SURGERY. Paper: Mr. Zachary Cope: Criticism of Current Views of Shock and Collapse.

THURSDAY.—8.15 P.M., TROPICAL DISEASES. Laboratory Meeting at the London School of Hygiene and Tropical Medicine, 23, Endsleigh-gardens, Euston-road, W.C. 1. Illustrations will be given of the techniques discussed at the last meeting of the Section.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, W.

MONDAY, Jan. 2nd.—10 A.M., Dr. Dowling: Skin Department. 11 A.M., Mr. Tyrrell Gray: Surgical Wards. 2 P.M., Dr. Trevor Davies: Gynæcological Department.

TUESDAY.—2 P.M., Dr. Shaw: Medical Out-patients. 2 P.M., Mr. Sinclair: Surgical Out-patients. 4.30 P.M, Dr. Carmichael Low: Malaria and Blackwater Fever (lecture).

WEDNESDAY.—10 A.M., Dr. Burnford: Medical Wards. 2.30 P.M., Mr. Donald Armour: Surgical Wards.

THURSDAY.—10 A.M., Dr. Grainger Stewart: Neurological Department. 2 P.M., Mr. MacDonald: Genito-urinary Department. 2 P.M., Mr. Bishop Harman: Eye Department.

FRIDAY.—10 A.M., Dr. Pritchard: Special Medical Treatment Clinic. 2 P.M., Mr. Vlasto: Throat, Nose, and Ear Department.

SATURDAY.—10 A.M., Dr. Burnford: Bacterial Therapy. 10 A.M., Dr. Owen: Medical Diseases of Children.

Medical and Surgical Out-patients, Operations, Special Departments, daily, 10 A.M. to 5 P.M., Saturdays, 10 A.M. to 1 P.M.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY, Jan. 2nd.—2.30 P.M. to 5 P.M., Medical, Surgical, and Gynæcological Clinics. Operations.

TUESDAY.—2.30 P.M. to 5 P.M., Medical, Surgical, Throat, Nose, and Ear Clinics. Operations.

WEDNESDAY.—2.30 P.M. to 5 P.M., Medical, Skin, and Eye Clinics. Operations.

THURSDAY.—11.30 A.M., Dental Clinic. 2.30 P.M. to 5 P.M., Medical, Surgical, and Ear, Nose, and Throat Clinics. Operations.

FRIDAY.—10.30 A.M., Throat, Nose, and Ear Clinics. 2.30 P.M. to 5 P.M., Surgical, Medical, and Children's Diseases Clinics. Operations.

ROYAL NORTHERN HOSPITAL, Holloway-road, N.

TUESDAY, Jan 3rd.—3.15 P.M., Mr. C. L. Gimblett: External Eye Disease.

Appointments.

COCHRANE, H. L., M.B., B.Ch. Belf., has been appointed House Surgeon, Royal Infirmary, Oldham.

HOLDEN, O. M., M.D. Birm., D.P.H., Medical Officer of Health for Croydon.

MILLER, J.W., M.B., Ch.B. Glasg., D.P.H., Medical Officer of Health, Lewisham Borough Council.

Manchester Northern Hospital for Women and Children: SUTHERLAND, D. MCKAY, M.D. Manch., Honorary Assistant Surgeon for Children; DYSON, MARGARET, M.B., Ch.B. Manch., Senior House Surgeon; EDWARDS, MURIEL M., Junior House Surgeon.

Certifying Surgeons under the Factory and Workshop Acts: CALDWELL, J.S., L.R.C.P., L.R.C.S. Edin. (Aberlour District of the County of Banff); SEAGER, F. R., L.R.C.P., L.R.C.S. Edin. (Wolston District of the County of Warwick); and MORRICE, A. M., M.B., Ch.B. Aberd. (Southampton District of the County of Southampton).

Vacancies.

For further information refer to the advertisement columns.

Aberdeen Royal Hospital for Sick Children.—Lady Supt.

Accrington, Victoria Hospital.—H.S. £150.

Barry Urban District Council, Accident and Surgical Hospital.—H.S. At rate of £200.

Bath, Royal United Hospital.—H.S. At rate of £120.

Belfast, Joint Nursing and Midwives' Council, Northern Ireland.—Examiners of Midwives.

Birmingham Pensions Hospitals Committee.—Jun. Surg. O. £300.

Bristol General Hopsital.—Hon. Med. Registrar.

Bristol, Ham Green Fever Hospital and Sanatorium.—Asst. Res. M.O. £300.

Canterbury, Kent and Canterbury Hospital.—Third Res. M.O. At rate of £125.

Central London Ophthalmic Hospital, Judd-street, W.C.—Two Out-patient Officers. Each at rate of £150.

Derby, Derbyshire Royal Infirmary.—Hon. Gynæcologist.

Exeter, Royal Devon and Exeter Hospital.—Sen. H.S. £200.

Freemasons' Hospital and Nursing Home, 237, Fulham-road, S.W.—Res. M.O. At rate of £250.

Guildford Union.—Res. Asst. M.O. £150.

Hospital for Consumption and Diseases of Chest, Brompton, S.W.—H.P. £50 for six months.

Hospital for Tropical Diseases, Endsleigh-gardens, W.C.—Hon. Asst. P.

Hull Royal Infirmary.—Second H.S. At rate of £150.

Leeds Public Dispensary.—Jun. Res. M.O. £150.

Lincoln, The Lawn.—Med. Supt. £700.

London School of Hygiene and Tropical Medicine, University Chair of Public Health.—£1300.

Manchester, Ancoats Hospital.—H.S. £100.

Manchester, St. Mary's Hospitals.—Three H.S.'s. Each at rate of £50.

Margate, Royal Sea Bathing Hospital for Surgical Tuberculosis.—Two H.S.'s. Each at rate of £200.

Mount Vernon Hospital for Diseases of Chest, Northwood, Middlesex.—Asst. Res. M.O. At rate of £250.

Northampton, Creaton Sanatorium.—Med. Supt. £550.

Oldham County Borough.—Res. Asst. M.O.H. £450.

Prince of Wales's General Hospital, Tottenham, N.—Hon. Anæsthetist.

Queen Mary's Hospital for the East End, E.—Anæsthetist. 25 guineas.

Royal Army Medical Corps.—Limited number of Commissions.

Royal Free Hospital, Gray's Inn-road, W.C.—Sen. Clin. Assts.

Royal London Ophthalmic Hospital, City-road, E.C.—Two Out-patient Officers. Each £100.

St. Mark's Hospital for Cancer, &c., City-road, E.C.—H.S. At rate of £75.

St. Pancras Dispensary, 39, Oakley-square, W.C.—Res. M.O. £185.

Shanghai Municipal Council, Public Health Dept.—Asst. Pathologist. 600 Taels per mensem.

Southport General Infirmary.—Hon. Radiologist.

Warrington Infirmary and Dispensary.—Jun. H.S. £175.

Watford, Peace Memorial Hospital.—Res. M.O. At rate of £150.

Weston-super-Mare Hospital.—Res. M.O. £130.

Wolverhampton and Staffordshire Hospital.—H.S. At rate of £150.

Wrexham and East Derbyshire War Memorial Hospital.—Hon. Asst. P. and S.

A vacancy for a Surgeon as a Medical Referee under the Workmen's Compensation Act for Circuit 54, Bristol, Wells, &c., is announced. Applications should reach the Private Secretary, Home Office, Whitehall, S.W., not later than Jan. 21st.

Births, Marriages, and Deaths.

BIRTHS.

LANE.—On Dec. 22nd, at 9, Lancaster-road, Swiss Cottage, to Margherita, wife of Dr. C. Rickword Lane—a daughter.

NEWTON.—On Dec. 20th, the wife of Dr. F. L. Newton, of Malvern, of a daughter.

RUSHWORTH.—On Dec. 12th, at Orchard Corner, Walton-on-Thames, the wife of Arthur N. Rushworth, M.R.C.S., L.R.C.P., of a son.

SMART.—On Dec. 21st, at Seaton, Devon, the wife of A. H. J. Smart, M.B., of a daughter.

DEATHS.

BLACKHALL-MORISON.—On Dec. 23rd, suddenly, at Upper Berkeley-street, W., Alexander Blackhall-Morison, M.D., F.R.C.P. Edin. and Lond.

FALLA.—On Dec. 16th, at Adelaide Lodge, Jersey, Walter Falla, M.R.C.S., L.R.C.P. Lond., aged 71.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

INSTITUTE OF PSYCHO-ANALYSIS.—Dr. John Rickman will give a course of lectures for medical practitioners and students, under the auspices of this institute, at the London Clinic of Psycho-analysis, 39, Gloucester-place, W., on Friday evenings at 8 P.M., from Jan. 27th to March 2nd. Particulars may be found in our advertisement columns.

GUY'S HOSPITAL.—An appeal is being made for help to reduce last year's deficit of £24,000 upon an expenditure of £170,000. It is explained that, contrary to the popular impression, Guy's is not a rich institution, its endowed income being only £65,000. Over 30 per cent. of its patients come from outside the London area, and a large proportion of the metropolitan patients come from districts other than its own.

Notes, Comments, and Abstracts.

PUBLIC HEALTH IN PALESTINE AND TRANS-JORDANIA.

THE report made by H.M. Government to the Council of the League of Nations on the administration of Palestine and Trans-Jordan for the year 1926 has been issued from the Colonial Office. In regard to Palestine it is stated that the general health of the community was satisfactory, apart from the heavy incidence of enteric and dysentery in certain populous settlements, where conditions of sanitation and housing were bad, or where a pure water supply was inadequate and unsafe sources were used. There were 1400 cases of enteric, with 110 deaths, and 1732 of dysentery, with 37 deaths. During this epidemic certain of the voluntary hospitals rendered valuable service, notably the Kupat Holim Hospital at Ain Harod. The general inoculation of Jewish settlers in the Valley of Jezreel curtailed the epidemic in that highly infected area. In Tel-Aviv about 20,000 double doses were administered. Measures are being taken in coöperation with municipalities and Jewish organisations to remedy the insufficiency of conservancy and sanitary arrangements in the smaller settlements and the overcrowding in towns, also to provide additional sanitary officers and to augment the hospital accommodation for fever cases. There has been no serious outbreak of any other infectious disease, and no case of cholera or small-pox. One case of plague was landed at Haifa in November, and discharged from hospital cured in the following month. An intensive campaign of revaccination against small-pox was carried out in the spring, when 170,881 vaccinations were performed.

The estimated population at July 1st, 1926, was 761,896 (excluding Bedouin). Births during the year numbered 40,721, or 53·45 per 1000 population; and deaths 18,623, or 24·44 per 1000. Infantile mortality was 6644 = 163·15 per 1000 births. The syphilis clinic at Hebron has proved of considerable benefit. A second clinic is being opened for Bedouin in the Beersheba district. Out-patient dispensary treatment is provided for leprosy cases which cannot be admitted to the Moravian Mission Leper Home. There are not more than 50 lepers in the country; 25 are accommodated in the Home, which at present will only accept unmarried inmates.

The pilgrim route by the Hejaz Railway to Ma'an, and thence by land or sea from Akaba, was protected by the closure of Akaba port for pilgrim ships and the establishment at Ma'an by the Trans-Jordan Government of a temporary lazaret, laboratory, and epidemic hospital. Over 25,000 routine examinations were carried out in the central laboratories: the bacteriological subsection produced 60,465 c.cm. of carbolised antirabic vaccine, 442,750 doses of small-pox lymph, 107,000 c.cm. of antityphoid-paratyphoid vaccine, and 5140 c.cm. of anticholera vaccine. The routine tests of efficacy in children of the small-pox lymph gave an index of successful vaccination of 99·4 per cent. out of 1298 vaccinations performed and observed. The chemical subsection undertook investigations in connexion with sewage disposal, arsenical poisoning, and the adulteration of indigenous oils. Much progress was made in the towns and hill villages in the mosquito-proofing of rain-water cisterns. In the plains, extensive reclamation works were undertaken by Jewish organisations at Kabbara and in the Kishon area. Government medical officers and the Malaria Research Unit carried out a large number of small drainage schemes in conjunction with villagers and Jewish settlers. The Malaria Survey Section surveyed the Wadi Musrara and the Wadi Rubin swamps, where the Supreme Moslem Council is about to drain its lands. As a result of these measures and the low rainfall during the winter the amount of malaria in the country further decreased and there were no extensive epidemics of the disease.

The last years have seen a remarkable growth of infant welfare work in Palestine. The Hadassah organisation now maintains or supervises some 15 centres in Jerusalem, Tel-Aviv, Haifa, Tiberias, and in Jewish settlements. Local committees have started the same activities in Nablus, Haifa, Ramleh, Acre, and Bethlehem, and are securing the interest of the local populations. The British superintendents of midwifery at Jerusalem and Nablus will train nurses in the work. The Government ophthalmic clinics at Gaza, Ramleh, Beersheba, Nablus, Tulkarem, and Acre, with nursing staff trained and provided by the Ophthalmic Hospital of the Order of St. John at Jerusalem, have now become established. The high standard of technical proficiency attained is attributable to the skilled supervision of the surgeons of the Order. A Dentists Ordinance was promulgated in September, and regulates the practice of dentistry by qualified dentists and certain unqualified practitioners of long standing in the country. 105 import certificates were granted for the importation of dangerous drugs for legitimate medical or scientific use, as follows: opium, 15,489 g.; morphine, 1490 g.; heroin, 259 g.; pantopon, 57 g.; cocaine, 8515 g.

A considerable decline in the volume of immigration, and a simultaneous increase in the number of emigrants, were outstanding features of the year. Apart from the local trade depression, the financial disturbance in the countries of Central Europe, and particularly that in Poland (the provenance of 50 per cent. of the immigrants), impoverished prospective immigrants, and thus curtailed materially the flow of capital into Palestine. The number of immigrants during the year was 13,910 (6,276 men, 4864 women, and 2770 children), of whom 13,081 were Jews. The figures present a striking contrast to those for the year 1925, when 34,641 immigrants entered the country, of whom 33,801 were of Jewish race. The total number of emigrants during the year was 9429, of whom 7735 had settled in the country only since 1920. Three-quarters of the emigrants were working men and women. The volume of unemployment increased constantly throughout the year from 3000 at the end of 1925 to 8000 at the end of 1926. 52,301 travellers and 22,802 returning residents entered Palestine during the year, and 50,576 travellers and 24,695 residents left temporarily; in 1925, 87,666 travellers and returning residents entered Palestine, and 76,682 left. Tourist traffic showed an appreciable increase above that of the previous year. Numerous conducted parties visited the country.

CHRISTMAS POEMS.

Dr. Herbert A. Smith, 1, Denbigh-road, West Ealing, has sent us a collection of verses which he has prepared as a Christmas card. The devotional spirit is unmistakable, and the attempt in the verses to bring the old doctrines of revelation into line with modern thought is praiseworthy. The verses are illustrated with pen-and-ink drawings, and a limited number of copies, entitled Studies in Song, are available at 5*s.* from the author.

THE MIDWIFE'S PRONOUNCING DICTIONARY AND ENCYCLOPÆDIA.

THE pocket dictionary and encyclopædia of obstetrical and gynæcological terms, originally edited by Dr. Henry Robinson, has now been revised and reissued by Dr. J. K. Watson. It is in effect a compendium of information for the practising midwife, arranged in alphabetical form. The definitions are crisp and couched in terms which can readily be understood, and the text is interspersed with illustrative diagrams. At the end of the alphabetical section is a comparison of Centigrade and Fahrenheit thermometric scales, a transcript of the charts in use at Queen Charlotte's Hospital, and the rules of the Central Midwives Board. The book, which is published by the Scientific Press (Faber and Gwyer, Ltd., 24, Russell-square, London, W.C.), costs 3*s.*

HEALTH VISITING AS A PROFESSION.

THE writer of an attractive little book[1] on Health Visiting explains that her aims are fourfold: To explain to the general public the work of the health visitor; to give the student of health visiting an idea of what her future work will involve; to help her in her studies; and to act as her guide until she shall have had sufficient experience to face her problems without help. In these aims the author has succeeded admirably. Health visiting is indeed a new profession, and the qualifications and training required, the actual duties and the salaries to be demanded have not yet been standardised. A book written with knowledge of the present condition and outlook should therefore be welcomed by students and others who desire an insight into the life of a health visitor. After giving some general information Miss Armstrong devotes four chapters to the health visitor's work in connexion with home visiting centres and clinics, clerical work and antenatal care. Nearly all the rest of the book is given up to questions of feeding, clothing, care, and management in infancy and childhood, and common ailments, an appendix giving useful synopses of talks for mothers. Practically all the advice is sound and on common-sense lines; the chapter on common ailments is least successful. For example, thrush is due to a fungus and not to a germ; nettle-rash should not be distinguished from urticaria, for which it is a synonym; and albumin water should emphatically *not* be given indiscriminately in all forms of diarrhœa, since in infections by proteolytic organisms it is the worst possible measure. This section should be carefully revised, for the rest of the book makes good reading.

[1] Health Visiting: the New Profession. By C. Phyllis Armitage. London: John Bale, Sons and Danielsson, Ltd., 1927. Pp. 332. 7*s.* 6*d.*

THE SAVANT IN THE FLOWER GARDEN.

Dr. F. Dawtrey Drewitt, author of "The Romance of the Apothecaries Garden at Chelsea," has published another little volume entitled "Latin Names of Common Plants: Their Pronunciation and History," for which gardeners and all who love their gardens will be grateful to him. He gives the origin of the names of garden flowers and shrubs, with the correct pronunciation of Latin names and much other information. The matter is scholarly, the writing easy, and (mirabile dictu) there is an excellent index. The book, which is well arranged and beautifully printed, would make an acceptable present to gardening friends. It is published by Messrs. H. F. and G. Witherby (326, High Holborn, London, W.C.) at 3s. 6d.

A SIMPLIFIED OPHTHALMOSCOPE.

Mr. E. Leslie Farquharson, a medical student in the University of Edinburgh, has devised a simple and cheap ophthalmoscope which takes the form of a small attachment, fitting over the end of an "Ever Ready" pocket torch ("fountain pen" type). It consists of a hood with a small sight aperture at the back, containing a slotted stainless steel mirror set at an angle of 45°. This hood is mounted on the upper end of a conical tube, the base of which is joined to a cylinder, as shown in the illustrations. At the junction of the cone and cylinder a lens of suitable focal length is fitted. The cylinder slides up and down over a collar fitted to the barrel of the torch, allowing an accurate focusing adjustment. A slot is cut away in the roof of the hood to prevent any reflection therefrom.

Attachment alone.

Complete with torch.

The special advantages claimed for this instrument are its simplicity, small size, and low cost. It is only about 2½ inches long, and can be conveniently carried in the pocket, either attached to the torch or separately. As it is not fitted with a system of lenses, it cannot, of course, be used for investigating errors of refraction, or for examining the anterior parts of the eye; but where the eyes of the patient and observer are both of approximately normal focus it will give a good view of the fundus.

The instrument has been devised primarily for the benefit of medical students, who are advised to familiarise themselves with the routine examination of the fundus oculi, but to whom the cost of the electrical ophthalmoscopes at present on the market is sometimes prohibitive. It is also suggested that it may prove useful to practitioners who feel the need of some simple yet satisfactory instrument for examining the ocular fundus. It is obtainable from the Medical Supply Association, price 9s.

THE SERUM TREATMENT OF ACUTE POLIOMYELITIS.

IN a paper on this disease given before the Medical Society of London last February,[1] Dr. F. M. R. Walshe referred to serotherapy as a method which had given promising results in the pre-paralytic stage, but which was neither reliable in itself nor adequate to the demands of a severe epidemic, because only human serum, and not much of that, was available.

At a recent congress of French-speaking pædiatrists held at Lausanne,[2] the principal speaker (Dr. Etienne, of Nancy) recalled the work of Netter, who had succeeded in curing patients, even after paralysis had set in, as long ago as 1910. Netter's experiments, he said, had shown definitely that the serum was efficacious both in monkeys and men; the intrathecal method was the most efficient, and the serum best tolerated was human serum, although good results had been obtained from horse serum, which, however, was more liable to irritate the meninges. The serum of Pettit, which is prepared in a manner similar to that used against rabies, gives the best results, according to several of the speakers at this session, and Dr. Etienne also strongly recommended that of the Pasteur Institute. The treatment is, he says, specific to a high degree, so much so as to afford a means of differential diagnosis from other varieties of myelitis. After citing a number of successful, and sometimes remarkable, results, he gave as his opinion that one of the chief reasons why its use had not become universal was that clinicians did not give large enough doses. He recommended the intrathecal method to begin with in severe cases, always with the precaution of observing the patient for meningeal symptoms, and laid down 350 c.cm. as the minimum total dose; 80 to 100 c.cm. should be given the first day, and 40 to 80 on every successive day until obvious improvement takes place. The serum should be allowed 12 hours to act. Although the earlier the treatment the better are the patient's chances, it is never too late, and in the forms of slower development even 60 days is not a hopelessly long delay. The examples he gave included nine complete cures out of 11, the two being a diabetic in whom the disease was arrested in spite of the bad general condition, and a patient who had been left untreated for seven weeks.

[1] THE LANCET, 1927, i., 326.
[2] Press Médicale, Nov. 23rd, p. 1428.

ULTRA-VIOLET EQUIPMENT.

THE current catalogue and price list of the Hewittic Electric Co., Ltd., of Walton-on-Thames, Surrey, illustrates the latest models of mercury-vapour lamp, powerful lamps suitable for large scale treatment in hospitals or clinics, as well as smaller lamps for use in the consulting-room. The tendency at present is for ultra-violet therapy to become part of the general practitioner's equipment and the light stand or light suspension "Ulviarc" lamp seems well suited to this purpose. The Hewittic Company were pioneers of mercury lamp construction in this country, and their all-British quartz lamps compare favourably both in workmanship and cost with foreign products.

A recent improvement in the design of Kromayer lamps has been introduced by the British Hanovia Co., of Slough, Bucks, making the lamp independent of the main water-supply, since it carries its own reservoir in the base of the stand. The water is circulated by means of a pump, and by an ingenious arrangement of the switch it is impossible to strike the arc until the water circulation around the lamp is established. Two of the practical disadvantages of the lamp—the inconvenience of trailing water-pipes and the danger of turning on the lamp before filling the water-jacket—are thus eliminated.

COFFEE.

IN spite of animal experiments and human experience the proper place of coffee in diet, and of caffeine in therapeutics, remains to a certain extent doubtful. This, at any rate, is the opinion of Dr. R. R. Irvin, of Pittsburgh, who has lately summarised the evidence on what he terms the "hygienic aspects of coffee."[1] As a beverage, he points out, it has certainly stood the test of time, for it was used in Arabia in the ninth century, and in Persia even earlier. Reaching Europe in the latter part of the sixteenth century, it at once became popular owing to its stimulant properties, pleasant taste, and fragrant aroma.

The chief active constituent of coffee is caffeine. This alkaloid has a definite stimulant action on the heart and blood-vessels, but in the normal adult, who takes coffee regularly, this effect is not very great if the amount drunk is moderate. Opinion is divided as to whether coffee plays any part in the production of arterio-sclerosis. Its diuretic effect is not fully explained, Dr. Irvin considers, though it may be due to dilatation of the renal arterioles coupled with cardiac stimulation. Other theories are that caffeine directly stimulates the renal epithelium or poisons the cells of the tubules, thereby preventing reabsorption, but large doses can be given to rabbits without causing damage to the epithelium of the kidney. In moderate doses coffee is said to increase alimentary peristalsis both in rate and force. On the nervous system it acts chiefly as a cerebral stimulant and this property lends itself readily to abuse which may cause insomnia and nervous irritability. As a stimulant, therefore, it should only be used in moderate strength and sober quantities. It speeds up metabolism and hastens the drain upon the reserve powers of the body, but is effective as a muscular and mental stimulant, says Dr. Irvin, only when some degree of fatigue is present. Owing to its stimulation of metabolism it is important that food should be taken at the same time when coffee is used to remove fatigue.

There appears to be general agreement that coffee should not be given to children, and Dr. Irvin, having found traces of caffeine in breast milk, suggests that it should be given very sparingly to nursing mothers.

[1] Medical Jour. and Record, Oct. 5th and 19th, and Nov. 2nd.

Sir StClair Thomson, Chevalier de la Légion d'Honneur, has been promoted to the rank of officer.

PROPOSED AMALGAMATION OF BELFAST HOSPITALS. The Board of Management of the Royal Victoria Hospital, Belfast, has decided in favour of a proposal for the amalgamation with it of the Maternity Hospital. The scheme involves a capital expenditure of £100,000, and an annual charge for maintenance of £14,000. The Maternity Hospital has 26 beds, but at least 100are needed to meet the city's requirements.

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Readers in search of a given subject will find it useful to bear in mind that the references are in several cases distributed under two or more separate but nearly synonymous headings—such, for instance, as Brain and Cerebral, Heart and Cardiac, Liver and Hepatic, Child and Infant, Goitre and Thyroid, Diabetes, Glycosuria and Sugar, Eye, Ophthalmic, and Vision, Lunacy and Mental Disease, Arsenobenzol and Salvarsan, &c., &c., and that regional headings are more frequently used than pathological. Institutions and Corporations with the right to the prefix Royal will be found under that prefix, with the exception of Hospitals, which will be found under that heading; and Medical Societies, which are separately indexed under Societies. All Universities are indexed under the word University. (A.) = Annotation, (C.) = Correspondence, (N.I.) = New Inventions, (L.A.) = Leading Article, (M.L.) = Medico-legal, (M.T.T.) = Modern Technique in Treatment, (O.) = Obituary, (P.I.) = Parliamentary Intelligence, (R.) = Review, and (R. and A.R.) = Reports and Analytical Records.

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PUBLISHED BY THE PROPRIETORS, THE LANCET LIMITED, No. 423, Strand, and No. 1, Bedford-street, Strand, in the County of London, and printed by HAZELL, WATSON & VINEY, LD., 52, Long Acre, W.C. 2.

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Telegrams—LANCET, WESTRAND LONDON. *Telephone*—GERRARD 4314 & 4315. *Offices*—423, Strand, London, W.C

No. XXVII. OF VOL. II., 1927. LONDON, SATURDAY, DECEMBER 31, 1927 Pp. 104—Price 1s.
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THE TIMES, June 23, 1927.

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MANCHESTER GUARDIAN, July 18, 1927.

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THE LAW TIMES, July 9, 1927.

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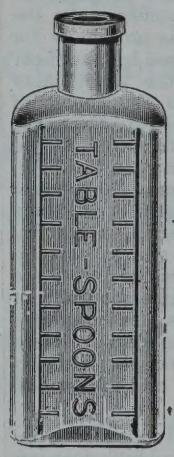

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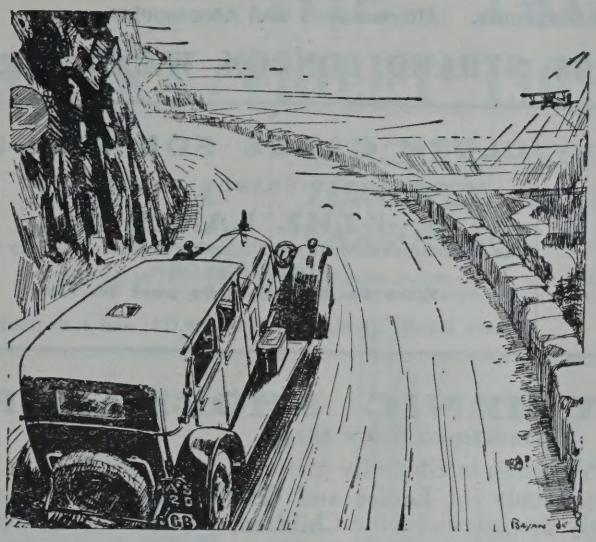

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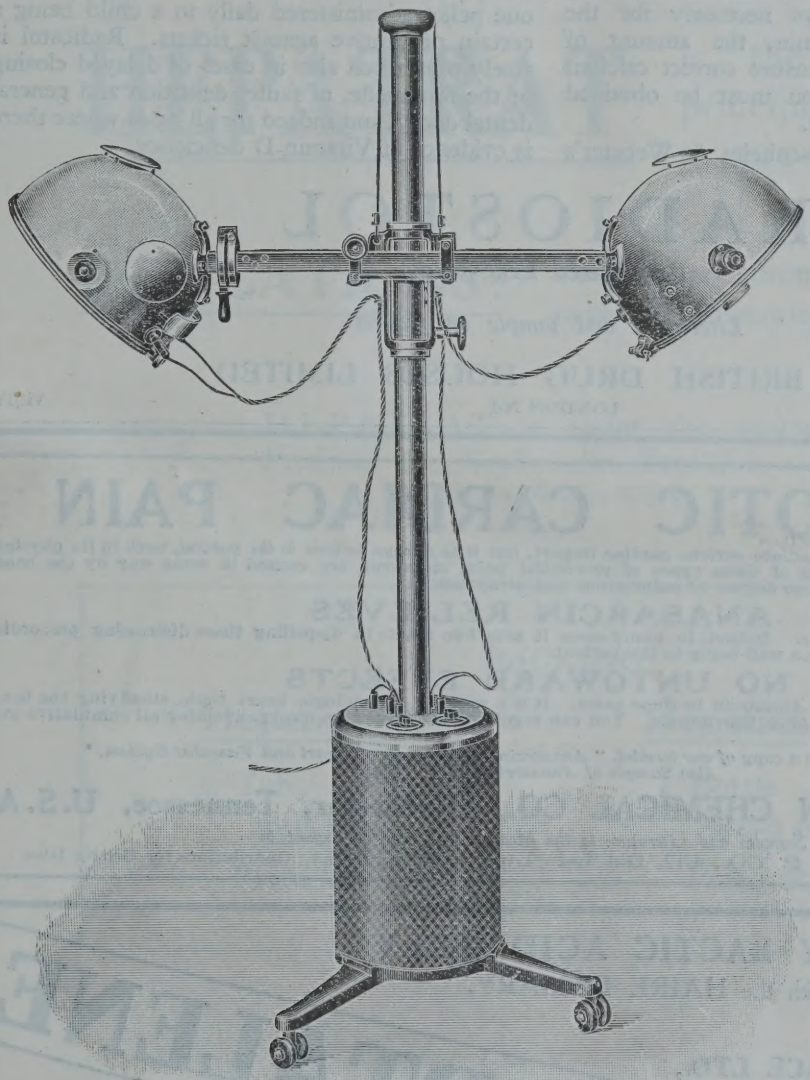

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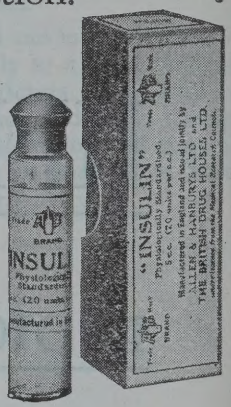

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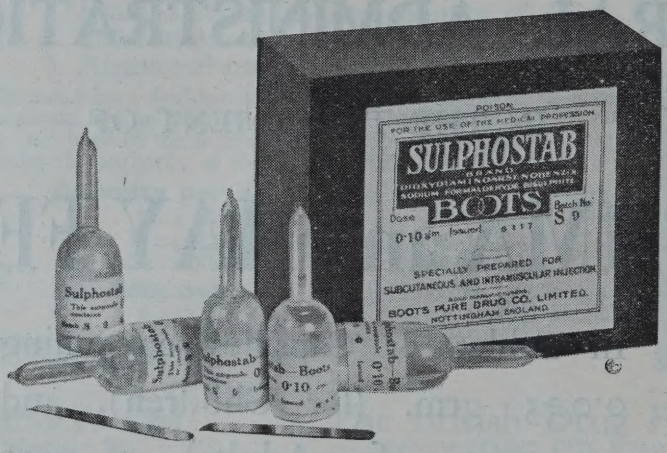

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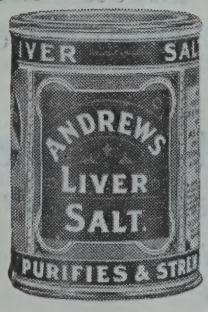

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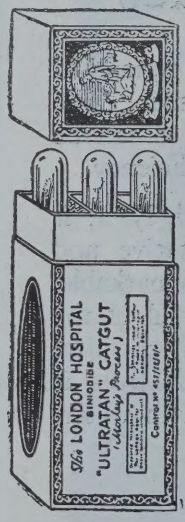

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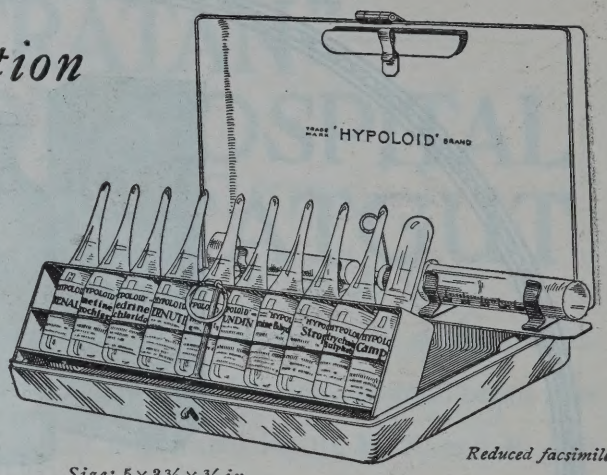

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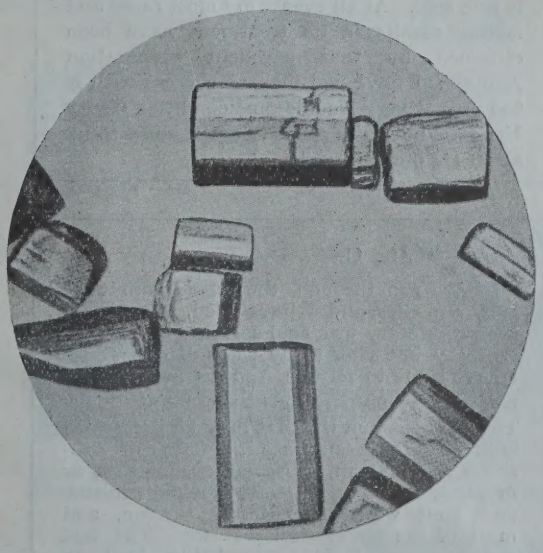

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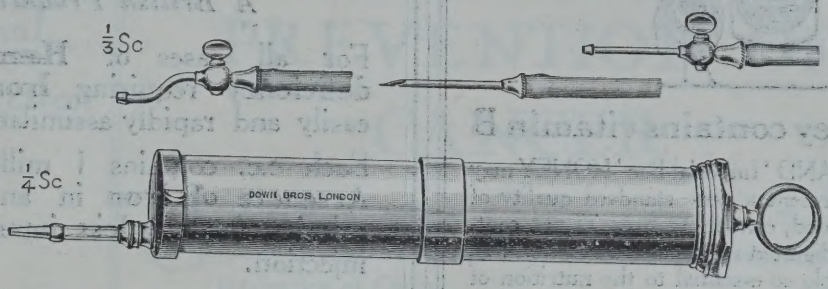

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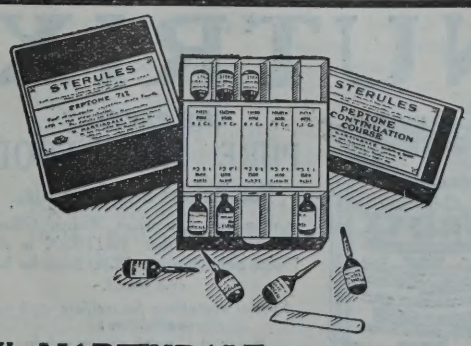

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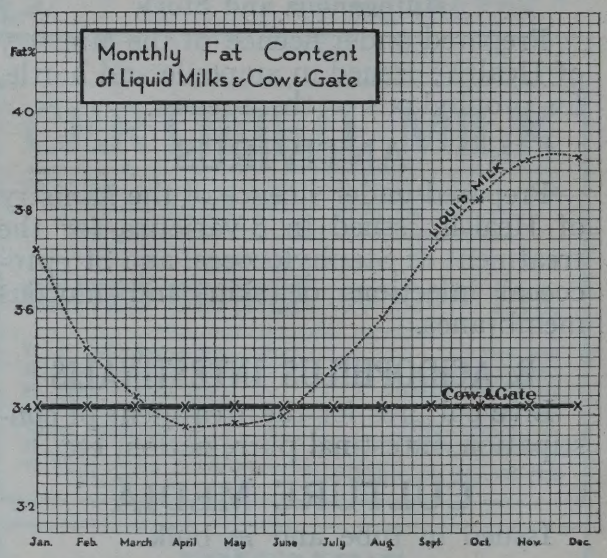

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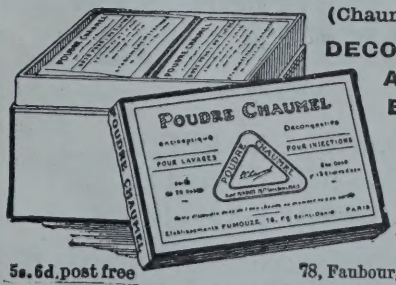

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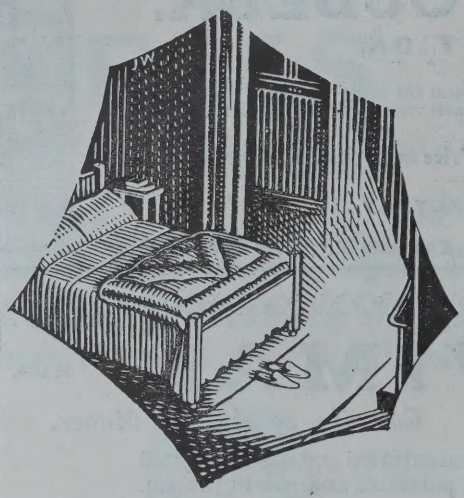

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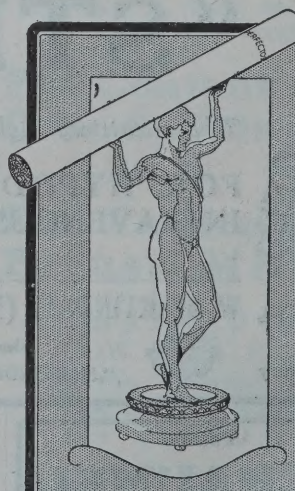

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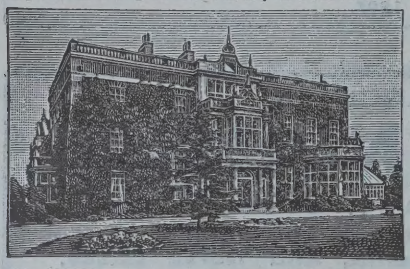

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For particulars apply to Medical Superintendent:
H. MORRISTON DAVIES, M.D., M.Ch.(Cantab.), F.R.C.S., Llanbedr Hall, Ruthin, N. Wales.

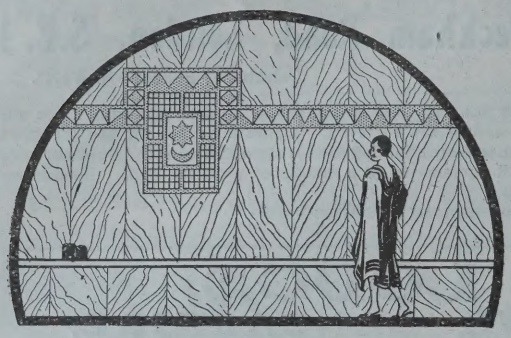
PRIOR PLACE SANATORIUM

HEATHERSIDE, CAMBERLEY.

RECENTLY OPENED FOR THE TREATMENT OF PULMONARY TUBERCULOSIS.

WELL SITUATED ON HIGH GROUND AND SURROUNDED BY PINES AND HEATHER.

RESIDENT MEDICAL SUPERINTENDENT: Dr. H. O. BLANFORD, late Medical Superintendent, King Edward VII. Sanatorium, Midhurst, to whom applications for particulars may be made.



FOR comfort, pleasure and restfulness in Margate's wonderful air, the Hydro is unsurpassed. It is a model of unostentatious efficiency. Central heating. H. & C. Water in all bedrooms, Lift, etc.

Situated on high ground in the residential part of Cliftonville, yet is close to sea and amusements.

THE HYDRO BATHS,

which include Turkish, Russian, Electric and Medical, are judged to be the finest in the country.

A fully Illustrated Booklet of the Hydro, the Hydro Baths, or both, post free.

The HYDRO

Cliftonville Avenue, Cliftonville

Telephone: MARGATE 584. Telegrams: HYDRO, MARGATE

Telegraphic Address: "Relief, Old Catton." Telephone: 290 Norwich.

NERVOUS & MENTAL AFFECTIONS.

Ladies only received.

The Grove, Old Catton, Norwich.—**A High-class Home for the Curative Treatment** of Nervous Affections. **Voluntary Boarders** are also received without certificates.

For full particulars apply to the Misses MCLINTOCK, or to Dr. S. BARTON, 34, Surrey-street, Norwich, Visiting Physician.

MATERNITY FOR NEW POOR.

Matron of West End Nursing Home receives MATERNITY CASES in Annexe of her Home. Single rooms £7 7s. Bright sunny ward £6 6s., exclusive of Doctors' fees. Exceptionally good cuisine. Milk straight from farm daily.

Matron, 30, Porchester-square, Hyde Park, W. 2.
Phone: PARK 8996 & 8997 (2 lines). *'Grams:* MOHAIR, LONDON.

BOURNEMOUTH HYDRO

Plombière Lavage, Electrical, Massage, and Thermal Treatment; Brine, Turkish, Nauheim, and Radiant Heat Baths.

ULTRA-VIOLET LIGHT

Resident Physician—W. JOHNSON SMYTH, M.D. *Tel.* **341.**

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MATLOCK. Established 1853.

Physicians: G. C. R. Harbinson, M.B., B.Ch.
R. MacLelland, M.D., C.M. (Edin.).

Prospectus and full information on application to the Manager.

NORDRACH-ON-DEE SANATORIUM, BANCHORY

Built on a specially selected site for the treatment of Tuberculosis in all its forms. It is situated in the pine woods of Middle Deeside; with a sheltered southern exposure which ensures the maximum of sunshine.

Fully equipped for all forms of modern Treatment. Resident Medical and Nursing Staff

Senior Physician: **R. C. HUTCHINSON, M.D., D.P.H.,** late Medical Superintendent Royal National Hospital for Consumption and Diseases of the Chest, Ventnor.

Inclusive Terms . £7 7 0 per week.
A limited number of special rooms at £9 9 0

For further particulars apply to—
The Secretary, Nordrach-on-Dee, Banchory, Kincardineshire

RUTHIN CASTLE

(Formerly Duff House, Banff).

The first Private Hospital in the United Kingdom to be fully provided with a whole-time specially qualified Staff of Doctors, Analytical Chemists, Bacteriologists, Radiologists, Nurses, Dietists, Masseurs, and Masseuses, and a full equipment of Laboratories, X-rays, Electrocardiograph Artificial Sunlight, and Medical Baths.

The Hospital is equipped for the diagnosis and treatment of any form of ill-health, except Mental and Infectious Diseases. The fees are inclusive.

The climate is mild and the neighbourhood beautiful.

Apply: THE SECRETARY, Ruthin Castle, North Wales.

Telegrams: CASTLE, RUTHIN. *Telephone:* 66 RUTHIN.

TOR-NA-DEE SANATORIUM
MURTLE, DEESIDE, ABERDEENSHIRE.

Medical Director: DAVID LAWSON, M.D., F.R.S.E.

FULLY EQUIPPED WITH *EVERY MODERN APPLIANCE* FOR THE DIAGNOSIS AND TREATMENT OF ALL FORMS OF TUBERCULOSIS & ALLIED DISEASES.

Physician Superintendent: J. M. JOHNSTON, M.B., D.P.H., etc.

Full Particulars and Prospectus on application to the Secretary.

INCLUSIVE TERMS: SEVEN GUINEAS A WEEK.

THE COTSWOLD SANATORIUM.

A private sanatorium specially built in 1898 on the Cotswold Hills, seven miles from Cheltenham, for the treatment of Pulmonary and all other forms of Tuberculosis on Nordrach lines. Aspect S.S.W., sheltered from North and East, elevation 800 ft. Pure bracing air. **SPECIAL TREATMENT** by artificial **PNEUMOTHORAX** (X-ray controlled), **TUBERCULINS, SANOCRYSIN,** and **ULTRA-VIOLET RAYS** is available when necessary without extra charge. **X-RAY** plant. Electric light. Radiators with hot and cold basins in all rooms. Full day and night Nursing Staff. Wireless in all rooms.

Resident Physicians: ARTHUR H. HOFFMAN, M.D., and GEOFFREY A. HOFFMAN, M.B.

Apply: Secretary, Cotswold Sanatorium, Cranham, Gloucester.

Telephone: 41 Witcombe. *Telegrams:* Hoffman, Birdlip.

THE VICTORIA SANATORIUM
DAVOS, Grisons, Switzerland (Altitude 5,200 feet above sea-level)
For the Treatment of all Forms of TUBERCULOSIS

Under entirely new management. Caters especially for English-speaking clients

Situated in the centre of the English Quarter, Davos-Platz. This establishment is intended to receive English-speaking patients suffering from tuberculosis.

Terms from £5 a week

For particulars apply to the Medical Superintendent, BERNARD HUDSON, M.D. (Cantab.), M.R.C.P., Swiss Federal Diploma, The Victoria Sanatorium, Davos-Platz, or to the MANAGER.

PALACE SANATORIUM
Montana, Switzerland.

For the Treatment of Pulmonary and Surgical

TUBERCULOSIS

SUNNIEST HEALTH RESORT IN THE ALPS.
Altitude 5,000 feet.

MODERN EQUIPMENT

including roof Solarium, Throat Room, Clinical Laboratory, and recent X Ray Plant.
Day and Night Staff of English trained Nurses.

Medical Superintendent—
ANDREW MORLAND, M.B., B.S. Lond.

Inclusive Terms from £7 7s. 0d. per week.

Particulars from MEDICAL SUPERINTENDENT, or from THE SECRETARY, 5, Endsleigh Gardens, London, W.C. 1.

RESIDENTIAL TREATMENT.

ALCOHOLISM and DRUG ADDICTION
at CALDECOTE HALL, NUNEATON.

This Mansion has been opened upon the most modern and scientific lines both physical and mental.

Resident Medical Superintendent—
A. E. CARVER, M.A., M.D., M.R.C.S., D.P.H., D.P.M.

Full particulars upon request.

Prospectus from the SECRETARY, 40, Marsham Street, Westminster, S.W.1

ALCOHOLISM, DRUG HABIT, and NEURASTHENIA.
BAY MOUNT, PAIGNTON.

Ladies and Gentlemen treated in small Private Home.

EXCELLENT RESULTS FROM MODERN TREATMENT.

WINTER SUNSHINE. AMPLE AMUSEMENT

MODERATE INCLUSIVE TERMS.

Prospectus, report, etc., from STANFORD PARK, Res. Med. Supt.
Phone: Paignton 5110.

ALCOHOLISM OTHER DRUG HABITS, INSOMNIA, ETC.

DR. FRANCIS HARE

Late of the Norwood Sanatorium, Beckenham,

IS NOW RESIDENT AT

"OAKLANDS," 15, THE AVENUE, BECKENHAM,

where he is prepared to receive and treat patients.

Phone: Ravensbourne 3622. Telegrams: "Hare, Beckenham."

FARMWOOD, ASCOT.

This Sanatorium provides for the Treatment of Patients suffering from PULMONARY and other forms of TUBERCULOSIS.
There is a trained Night and Day staff of Nurses.
Terms from 6 to 9 guineas per week. There are no extras. One hour from London.
Medical Superintendent—BERKELEY N. ASH, M.R.C.S., L.R.C.P. late Physician, Pendyffryn Hall, North Wales; 1st Assistant M.O., King Edward VII. Sanatorium, Midhurst; Senior R.M.O., Mount Vernon Hospital for Consumption.
For full particulars apply to the SECRETARY, FARMWOOD, ASCOT. Tel. Ascot 519

INEBRIETY. Telephone: 16 Rickmansworth

DALRYMPLE HOUSE, RICKMANSWORTH, HERTS.

For the treatment of Gentlemen under the Act and privately. Established 1883 by an association of prominent medical men and others for the study of inebriety; profits, if any, are expended on the institution. Large secluded grounds on the banks of the river Colne. All kinds of out-door and in-door recreations and pursuits.—For particulars apply to F. S. D. HOGG, M.R.C.S., &c., Resident Medical Superintendent.

"AUDREY HOUSE," Hendon Lane,

Church End, Finchley, N.3.
PRIVATE NURSING HOME FOR
ACUTE NERVE, MENTAL & BORDERLAND CASES.
Resident Physician and fully trained staff,
Fees 8 to 15 guineas per week (inclusive).
'Phone: Finchley 2587.

PORTSMOUTH CITY MENTAL HOSPITAL.

Accommodation is provided for the reception of PRIVATE PATIENTS of both sexes in three detached Villas, which are healthily and pleasantly situated in extensive grounds with sea views.
Charges from 3 guineas weekly, including all necessaries except clothing.—Apply to the Medical Superintendent and Resident Physician, THOMAS BEATON, O.B.E., M.D., M.R.C.P.

HOME FOR FEEBLE-MINDED
BRUNTON HOUSE, LANCASTER.

This well-appointed private establishment overlooks Morecambe Bay and possesses extensive gardens and grounds, with tennis and croquet lawns. Varied scholastic and manual instruction. Individual attention given by experienced staff under Lady Matron. For terms apply Dr. W. H. Coupland, Medical Superintendent.

NORTHUMBERLAND HOUSE,
GREEN LANES,
FINSBURY PARK, N.4.

A PRIVATE HOME for the treatment of patients of both sexes suffering from Mental Illnesses.
Private suites. Voluntary Boarders received without certificates.
For further particulars apply to the Medical Superintendent.
Tel.: North 0888. Telegrams: "SUBSIDIARY, LONDON."

COURT HALL,
KENTON, EXETER, SOUTH DEVON.
FOR THE CARE AND TREATMENT OF LADIES SUFFERING FROM MENTAL DISEASES.

Limited to Eight Patients. Telephone: Starcross 19.

CLIFFDEN, TEIGNMOUTH, in connection with Court Hall, for EARLY and CONVALESCENT CASES.
Cliffden is a large, well-appointed house with lovely views of the South Devon Coast. It is beautifully situated in grounds of 19 acres. The gardens are very attractive, and there is a private road to the beach.
Telephone: Teignmouth 289.
BERTHA M. MULES, M.D., B.S., ANNIE S. MULES, M.R.C.S., L.R.C.P., } *Resident Physicians*

SPRINGFIELD HOUSE

'Phone: BEDFORD 3417.] **Near BEDFORD**
For Mental Cases with or without Certificates.
Ordinary terms Five Guineas per week (including Separate Bedrooms for all suitable cases without extra charge).
For forms of admission, &c., apply to the Drs. BOWER, as above, or at 5, Duchess-street, Portland-place, W.1, on Tuesdays from 4 to 5.

PRESTON DEANERY HALL,
Northampton.

This Dietetic Institution, 3½ miles from Northampton, has been opened for the reception of PATIENTS REQUIRING DIAGNOSIS AND TREATMENT on rational lines. Own laboratory, X-ray, Electrical and Hydrotherapeutic treatments, Massage, Manipulation and remedial exercises.
Further particulars from the Secretary.
Fees from 12 guineas per week. *Telephone:* Hardingstone 6.

Royal York House Hotel, Bath.
'Phone 59.

Centrally situated in most healthy part of City. Close to Pump Room.
Remodernised. Redecorated. Refurnished.
Running water in Bedrooms.
Passenger Lift. Central Heating. Ground-floor Bedrooms.
Invalids specially catered for.
Specially low terms for forward bookings.
GARAGE. Apply, MANAGER.

Sunlight Treatment.—Medical
Electricity. Massage. Certificated Operators, male and female. Two treatments for 21s., inclusive.—8, Francis-street, Victoria (next A. & N. Stores). Tel.: Victoria 5615.

Grove House, All Stretton, Church
STRETTON, SHROPSHIRE.
A PRIVATE HOME for the Care and Treatment of a limited number of Ladies Mentally Afflicted.
Climate healthy and bracing.
Apply to Dr. McClintock, Proprietor and Resident Medical Superintendent.

Bucks Mental Hospital,
Stone, near Aylesbury.
The Visiting Committee of this Hospital can receive PRIVATE PATIENTS at a minimum weekly charge of 1½ guineas. No vacancies for female cases at present.
Apply to the Medical Superintendent.

Physician of wide experience in the
Treatment of Mental Disorder has a VACANCY in his Private Home for a Patient—voluntary or certified. Extensive lawns. Beautiful gardens. Occupations. In-door and out-door games. Motoring. Easy distance from town. Terms moderate.—Address, No. 862, THE LANCET Office, 423, Strand, W.C. 2.

Nursing Home, on East Coast,
practically overlooking sea. Standing in well planned, specially sheltered grounds. Affords a charming Home to those recovering from illness, and desiring rest, trained care, with every comfort and consideration. Fees from £7 7s. a week.—Address, Kent Lodge, Westgate-on-Sea, Kent.

The Prince of Wales's General
HOSPITAL, Tottenham, N. 15.

Applications are invited for the post of HONORARY ANÆSTHETIST, to attend on Tuesday afternoons. The appointment is for one year, subject to re-election. Honorarium of £20 per annum.
Applications, stating age and qualifications, accompanied by copies of three recent testimonials, must be sent in by the first post on Monday, 2nd January next, to
December 12th, 1927. FREDK. W. DREWETT, Director.

University of London.—The Senate

invite applications for the UNIVERSITY CHAIR OF PUBLIC HEALTH tenable at the LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE. Salary £1300 a year, together with an allowance of £200 a year. Applications (twelve copies) must be received not later than first post on 16th February, 1928, by the Academic Registrar, University of London, South Kensington, London, S.W. 7, from whom further particulars may be obtained.

Hospital for Consumption and Diseases

OF THE CHEST, Brompton, S.W. 3.

The Committee of Management invite applications for the post of HOUSE PHYSICIAN (for which there are two vacancies). The duties include work in the Out-patient Department as well as in the Wards. Applications, with copies of testimonials, must be sent in not later than Saturday, 14th January, 1928, addressed to the Secretary. The appointment is for six months, commencing on 1st February, 1928, with an honorarium of £50.

FREDERICK WOOD, Secretary.

Brompton, December, 1927.

Seamen's Hospital Society. — The

Committee of Management invite applications for the appointment of HONORARY ASSISTANT PHYSICIAN at the HOSPITAL FOR TROPICAL DISEASES, Endsleigh-gardens, W.C.

Candidates must be Doctors or Bachelors of Medicine of a University in the United Kingdom, and Fellows or Members of the Royal College of Physicians of London, or be prepared to take the Membership within a reasonable time. Candidates must also have had experience of Medicine in the Tropics. Possession of a Diploma in Tropical Medicine will be considered an additional qualification. The appointment carries with it a seat upon the Medical Council. The elected candidate will be appointed for twelve months but will be eligible for re-election.

Applications, with copies of not less than three nor more than six testimonials, to be sent in on or before March 31st, 1928, to the undersigned, from whom further particulars can be obtained.

Seamen's Hospital Society, Greenwhich, S.E.10.

28th November, 1927. R. E. V. BAX, Secretary.

COMMISSIONS

in the

ROYAL ARMY MEDICAL CORPS

A limited number of Commissions in the Royal Army Medical Corps, not exceeding twenty-five, will be offered in January, 1928.

Applications for consideration should reach the War Office not later than 10th January, 1928.

Candidates must be under twenty-eight years of age on 31st January, 1928, and will be required to present themselves in London for interview and medical examination towards the end of January.

There will be no Entrance Examination.

Full particulars as to conditions of Service and emoluments may be obtained on written or personal application to the

Under-Secretary of State,
War Office (A.M.D.I.),
Whitehall, London, S.W. 1.

St. Pancras Dispensary, 39, Oakley-

square, London, W.C.—The office of RESIDENT MEDICAL OFFICER will shortly become vacant. Salary £185 per annum, with residence and attendance. Candidate (Male) must be legally qualified to practise Medicine and Surgery in Great Britain and must be registered and be single. Testimonials to be sent to the Hon. Secretary, H. Peter Bodkin, 2, Endsleigh-street, Tavistock-square, W.C. 1, on or before the 21st January. The election will take place on the 7th February, 1928. H. PETER BODKIN, Hon. Sec.

Royal London Ophthalmic Hospital

(MOORFIELDS EYE HOSPITAL), City-road, E.C.1.

TWO OUT-PATIENT OFFICERS.

Applications are invited for the post of Out-patient Officer to attend on two mornings each week as follows:—

MONDAY and THURSDAY.
WEDNESDAY and SATURDAY.

Candidates must be registered Medical Practitioners. Salary at the rate of £100 per annum. The Out-patient Officers will be appointed for a period of one year and will be eligible for re-appointment.

Copies of regulations governing the appointment can be obtained on application.

Applications, stating age and qualifications, must be received not later than 6th January, 1928, by

ARTHUR J. M. TARRANT, Secretary.

Central London Ophthalmic Hospital,

Judd-street, W.C. 1.—There are vacancies for Two OUT-PATIENT OFFICERS to the Hospital, who shall attend on three afternoons a week. Remuneration at the rate of £150 per annum each. Applications, with testimonials, showing ophthalmic experience, shall be submitted not later than Monday, January 16th. Details in regard to the posts may be obtained from the Secretary, H. R. S. DRUCE.

St. Mark's Hospital for Cancer,

FISTULA, AND OTHER DISEASES OF THE RECTUM, City-road, London, E.C.1.

HOUSE SURGEON (Male) required. Must be fully qualified. Salary £75 per annum with board, residence, and laundry.

The appointment is for a minimum of six months. Applications, with copies of testimonials, must reach the Secretary (from whom further particulars may be obtained) not later than 14th January, 1928.

Freemasons Hospital and Nursing

HOME, 237, Fulham-road, Chelsea, S.W. 3.

The post of RESIDENT MEDICAL OFFICER (Male) will be vacant on 1st February next. Salary at the rate of £250 per annum, with board, residence, and laundry. The appointment is for six months. Candidates must be registered and must have held Resident appointments at a general Hospital.

The Institution (44 Beds) is for Paying Patients of both sexes of moderate means unable to afford ordinary Nursing Home treatment, &c.

Applications, stating full particulars, to be sent on or before 10th January next, to the Honorary Secretaries, from whom further information may be obtained.

Queen Mary's Hospital for the

EAST END, E. 15. Telephone: Maryland 2616.

ANÆSTHETIST.

Applications are invited for the above post of Anæsthetist.

Applications, accompanied by copies of testimonials, should be forwarded to the undersigned not later than Thursday, the 5th of January, 1928.

The appointment carries with it an honorarium of twenty-five guineas per annum, and attendance will be required on Monday mornings at 9 A.M.

Further particulars can be obtained from

RAPHAEL JACKSON (Major), Secretary.

Royal Free Hospital, Gray's Inn-

road, W.C. 1.

Applications are invited for SENIOR CLINICAL ASSISTANTS in the following departments:—

SURGICAL OUT-PATIENTS, Monday and Thursday afternoons;
CHILDREN'S DEPARTMENT OUT-PATIENTS, Friday afternoon;
THROAT, NOSE, AND EAR DEPARTMENT OUT-PATIENTS, Monday and Thursday mornings, ELECTRO-THERAPEUTIC AND LIGHT DEPARTMENT.

Appointments are for one year from February 1st, 1928. Holders are eligible for re-appointment.

Intending candidates should submit applications stating age and qualifications to the undersigned on or before the 7th January, 1928. Preference will be given to former students of the Hospital.

Applications are invited for JUNIOR CLINICAL ASSISTANTS in all Medical, Surgical, and Special Departments for six months from the 1st February, 1928.

Intending candidates should submit applications, stating age and qualifications to the undersigned on or before 7th January, 1928. Preference will be given to former students of the Hospital.

REGINALD R. GARRATT, Secretary.

Hackney Hospital.

The Board of Guardians invite applications from duly qualified gentlemen for the position of JUNIOR ASSISTANT MEDICAL OFFICER.

Candidates must be single, and must have held a previous Resident Hospital appointment.

The Hospital, which is situate at High-street, Homerton, E.9, contains 800 beds, and is equipped with modern requirements.

Besides the Medical Superintendent there are five Resident Medical Assistants and a Clinical Pathologist.

The remuneration is at the rate of £350 per annum, rising £25 per annum to a maximum of £425 per annum, together with rations, washing, furnished apartments, and attendance.

The officer appointed will be required to render assistance at the other establishments and departments of the Union, to assist in the training and instruction of nurses and to devote his whole time to the service of the Guardians.

The appointment will be subject to the provisions of the Poor-law Officers' Superannuation Act, 1896.

Further particulars as to the duties may be obtained from the Medical Superintendent.

Canvassing the Guardians, directly or indirectly, will disqualify candidates.

Applications must be made upon forms which are obtainable from the undersigned. The forms must be completed and returned with copies of not more than three recent testimonials, by Friday, the 6th January, 1928. By order.

E. W. HARBOUR, Clerk to the Guardians.

Clerk's Offices, Hackney Union,
2, Sidney-road, Homerton, E. 9.

Royal Sea-Bathing Hospital, Margate.

FOR SURGICAL TUBERCULOSIS.

Two MALE HOUSE SURGEONS are required, one on the 1st February and one on 1st March next. The salary is at the rate of £200 per annum, with board, residence, attendance, and laundry. Candidates for the posts must be legally qualified and registered. The appointments are for six months, but may be extended for a further period of six months. There are 300 beds for adults and children, which afford special opportunities for the study of Surgical Tuberculosis.

Applications, stating age and previous appointments, with copies of three testimonials, should be sent to the Secretary, R.S.B.H. Offices, 15, York-buildings, Adelphi, London, W.C. 2.

Guildford Union.

RESIDENT MALE ASSISTANT MEDICAL OFFICER.

The Guardians of the Guildford Union invite applications for the appointment of Resident Male Assistant Medical Officer at their Institution, Warren-road, Guildford (which will include the Children's Home adjacent thereto) at a salary after the rate of £150 per annum, together with residential emoluments.

Average numbers; Infirmary 120, House 200, Children's Home 20.

The appointment will be made in the first instance for a period of six months.

The successful candidate will be required to give certain lectures to Probationer Nurses, administer anæsthetics, carry out the dispensing and work generally under the direction of the Non-resident Medical Officer.

Applications, stating age, qualifications, and when able to enter on duties, accompanied by copies of recent testimonials, must reach me not later than Thursday, the 5th January, 1928.

WM. GEACH, Clerk to the Guardians.

5, Wellington-place, Guildford.

Derbyshire Royal Infirmary, Derby.

APPOINTMENT OF HONORARY GYNÆCOLOGIST.

The Board of Management invite applications for the office of Honorary Gynæcologist to the Infirmary.

Candidates must be qualified in accordance with the Rules of the Institution, and must undertake, if appointed, not to practise any branch of medicine or surgery other than gynæcology and obstetrics in or out of the Infirmary.

Further information may be obtained on application.

Candidates must send eighty copies of their application and testimonials (not more than three) which must be received not later than 31st January.

Any candidate who advertises in the public papers or canvasses in person or by writing will be disqualified.

By order.

WALTER BANKS, Superintendent and Secretary.

15th December, 1927.

Ministry of Pensions.

BIRMINGHAM PENSIONS HOSPITALS COMMITTEE.

HIGHBURY GROUP OF HOSPITALS, BIRMINGHAM (242 Beds).

Applications are invited for the post of JUNIOR SURGICAL OFFICER (Resident), unmarried, at the above Hospitals.

Orthopædic, General Surgical, and Medical cases are treated at these Hospitals, but the largest proportion of cases are of an Orthopædic nature.

Salary £300 per annum, with lodging, fuel, and light. The appointed candidate to be prepared to take up duty on or about February 1st, 1928.

Candidates selected for interview will be required to pay their travelling expenses.

Applications, stating age, experience, and War Service (if any), together with copies of recent testimonials, to be received not later than January 10th, 1928, addressed to the Chairman of the Committee, Highbury Hospital, Moseley, Birmingham.

Creaton Sanatorium, Northampton.

MEDICAL SUPERINTENDENT.

The Committee desire to receive applications for the post of Medical Superintendent of the above Institution which has accommodation for about 70 patients.

The salary will be at the rate of £550 per annum with furnished quarters and board, etc.

The gentleman appointed must be a registered Medical Practitioner and must devote the whole of his time to the duties required of him by the Committee. It is essential that he should have held House appointments in a General Hospital, and have had practical experience in the administration of a Tuberculosis Sanatorium, and in the treatment of Tuberculosis in such an Institution including X Ray and Ultra-violet Ray treatment, and in Bacteriological Laboratory work. He must also be specially experienced in the orthopædic treatment of non-pulmonary tuberculous cases.

The appointment will be terminable by one month's notice on either side.

Applications endorsed "Medical Superintendent," with copies of not more than three recent testimonials, must be delivered to the Secretary, 15, Guildhall-road, Northampton, on or before the 7th January, 1928.

A. CLIFFORD TOWERS, Secretary.

15, Guildhall-road, Northampton, 19th December, 1927.

Hull Royal Infirmary.—Wanted at once, SECOND HOUSE SURGEON, male, must be fully qualified and willing to hold office for not less than six months and to give and receive one month's notice to terminate engagement.

Salary at the rate of £150 per annum, with board and lodging.

Applications and testimonials to be sent to the undersigned not later than 2nd January, 1928.

BEN. BROOKS, Secretary.

Ancoats Hospital, Manchester.

HOUSE SURGEON (Orthopædic) required to commence duty on 1st February, 1928. Salary £100 per annum, with board, residence, laundry, &c. Applications, stating age, qualifications and experience, to be forwarded to the undersigned on or before 11th January, 1928, together with copies of three recent testimonials.

By order of the Board.

HERBERT J. DAFFORNE, Gen. Supt. and Secretary.

Bristol General Hospital. — The Committee invites applications from fully qualified and registered Medical Practitioners for the post of HONORARY MEDICAL REGISTRAR. The appointment will be made for twelve months and the holder will be eligible for re-election. Applications, stating age, qualifications, &c., accompanied by copies of testimonials, to be delivered to the undersigned on or before Monday, January 9th, 1928, from whom further particulars as to the duties attached to the post may be obtained.

THOMAS W. GREGG, Secretary.

Joint Nursing and Midwives' Council—

NORTHERN IRELAND.

EXAMINATION OF MIDWIVES.

The above Council being about to revise their list of Examiners, invite applications from registered Medical Practitioners, including Women, who would be willing to act. Preference will be given to applicants resident in Northern Ireland. Particulars on application to the Registrar, 118, Great Victoria-street, Belfast, to whom applications should be sent not later than 16th January, 1928.

The Lawn, Lincoln.

REGISTERED HOSPITAL FOR MENTAL PATIENTS.

The Governors invite applications for the post of MEDICAL SUPERINTENDENT (male or female) of the above Hospital.

Salary £700 per annum, with full board and house (part furnished).—Applications, stating age, previous experience, with copies of testimonials, to be sent to the Secretary, The Lawn, Lincoln, on or before 13th January.

Royal Aberdeen Hospital for Sick CHILDREN.

Applications are invited for the post of LADY SUPERINTENDENT of the Hospital—80 beds. A New Hospital of 132 beds is in course of erection, and will be ready for occupation in the course of 1928. Particulars will be supplied by Mr. A. S. R. Bruce, Advocate, 12, Dee-street, Aberdeen, with whom applications, along with twenty-four copies of testimonials, must be lodged by 10th January, 1928.

Aberdeen, December, 1927.

Shanghai Municipal Council.

PUBLIC HEALTH DEPARTMENT.

ASSISTANT PATHOLOGIST.

An Assistant Pathologist is required in the Public Health Department of the Shanghai Municipal Council.

Candidates, preferably unmarried, should not be more than thirty years of age, and must hold qualifications in Medicine and Surgery of University Standard, a D.P.H. and D.T.M. & H., though not essential, are desirable.

Salary Taels 600 per mensem, under three years' agreement, renewable at a higher salary in the event of satisfactory services. First-class passage is given, with half-pay during voyage.

Eight months' leave is given on full pay, with first-class passage, after every period of five years' service in Shanghai.

Free medical attendance is provided, and there is participation in the benefit of a Superannuation Fund.

A tael at the present rate of exchange equals 2*s.* 6*d.* Exchange is, however, subject to fluctuation.

Particulars of the appointment and full details as to the benefits enjoyed by Municipal employees under their terms of service, and as to cost of living, &c., may be obtained from the Council's Agents.

Applications, in candidates' own handwriting, with full information as to qualifications and experience, &c., accompanied by at least three recent testimonials and endorsed "Assistant Pathologist" on the cover, should be forwarded to

JOHN POOK & COMPANY,
Agents for the Municipal Council of Shanghai,
68, Fenchurch-street, London, E.C. 3.

January, 1928.

Warrington Infirmary and Dispensary.

The Board of Management invite applications for the post of JUNIOR HOUSE SURGEON (Male), unmarried. Applicants, who must be of British nationality, must be duly qualified Medical Practitioners.

Salary £175 per annum, with board, apartments, and laundry.

Applications, stating age, with copies of three recent testimonials, should be sent in to the undersigned not later than the 3rd January, 1928. The post will become vacant about the 13th January.

By order.
HENRY L. BOOT, Superintendent and Secretary.

County Borough of Oldham.

RESIDENT ASSISTANT MEDICAL OFFICER OF HEALTH.

Applications are invited from duly qualified Medical Women for the position of Assistant Medical Officer. The person appointed will work under the direction of the Medical Officer of Health and will reside at the Borough Infectious Diseases Hospital.

The chief duties are the attendance of patients in the Hospital and Maternity and Child Welfare work.

Salary £450 per annum, with board, lodging, and laundry.

List of duties and forms of application, which must be returned, together with copies of three recent testimonials, not later than Wednesday, January 11th, can be obtained from the undersigned.

Canvassing members of the Council will disqualify.

JAMES B. WILKINSON, M.D., C.M., D.P.H.,
Medical Officer of Health.

Town Hall, Oldham.

Southport (General) Infirmary,—The

Council of the above Institution invite applications for the appointment of HONORARY RADIOLOGIST from qualified Medical Men practising as such, to take charge of the X-Rays Department. Candidates must in all respects comply with the Rules and Bye-laws, copies of which may be obtained from the Secretary.

The successful candidate must reside within 50 miles of the Infirmary.

Canvassing in person, or by letter, or by proxy, will disqualify, but candidates may send to Members of the Council copies of their application and testimonials.

Applications, accompanied by not more than seven testimonials, must be forwarded and endorsed "Honorary Radiologist," to Mr. J. H. SHAW, Secretary, The Infirmary Office, Pilkington-road, Southport, on or before noon on Monday, the 9th day of January, 1928.

City and County of Bristol.

ASSISTANT RESIDENT MEDICAL OFFICER.

The Bristol Health Committee invite applications for the post of Male Assistant Resident Medical Officer, Ham Green Fever Hospital and Sanatorium. Appointment for one year. Salary £300 per annum, with board, residence and attendance.

If the Council so decide, the salary will be subject to a percentage deduction in accordance with the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and the selected candidate must undergo medical examination.

Applications by the 14th January, 1928, with copies of three recent testimonials, to The Medical Officer of Health, Public Health Offices, 40, Prince-street, Bristol.

(No canvassing.)

Wrexham and East Denbighshire
WAR MEMORIAL HOSPITAL.

Applications are invited by the Elective Committee of the above Hospital for the post of HONORARY ASSISTANT PHYSICIAN AND SURGEON.

Applications, stating age and qualifications, together with copies of not more than three recent testimonials, must be delivered to the undersigned on or before Saturday, 21st January, 1928. By order.

LESLIE SPENCER, Secretary.

Extract Rule 70.—"Personal canvassing of the Governors, Board, or the Elective Committee, or any members thereof, by any candidate for any office to be held in connection with the Institution, shall disqualify the candidate."

Wolverhampton and Staffordshire
HOSPITAL. (Incorporated by Royal Charter.)

HOUSE SURGEON required. Duties to commence forthwith.

The Hospital contains 210 Beds, and includes the usual Special Departments, and is recognised by the various Examining Bodies for a part of the requisite attendance on Medical and Surgical Practice.

Candidates must be registered under the Medical Acts, and unmarried.

The appointment is for six months, with a salary at the rate of £150 per annum, board, furnished rooms, and laundry provided.

Applications, with copies of testimonials, to be forwarded to the undersigned.

W. H. HARPER, House Governor and Secretary.

Wolverhampton, 20th December, 1927

Weston-super-Mare Hospital.—
RESIDENT MEDICAL OFFICER (Male, unmarried). Salary £130.

St. Mary's Hospitals, Manchester.—

Two HOUSE SURGEONS for the WHITWORTH-STREET WEST HOSPITAL (Maternity); and one for the WHITWORTH PARK HOSPITAL (Children's Department), each for a period of six months from the 1st February next. Salaries at the rate of £50 per annum, with board and residence.

Application, with copies of three testimonials, to be sent to the undersigned on or before the 11th January.

R. RATCLIFFE, Secretary.

Peace Memorial Hospital, Watford.

(108 Beds.)—A RESIDENT MEDICAL OFFICER (Male). £150 per annum. Appointment for six months; eligible for re-election. Applications, stating age and qualifications, with at least three recent testimonials, should be received not later than January 16th by the Secretary, from whom further particulars may be obtained. Duties to commence February 1st. No canvassing permitted.

Accrington Victoria Hospital.—The

Governing Body of this Hospital invite applications for the post of HOUSE SURGEON.

Candidates must be Male and duly qualified and registered. Number of Beds 50. Salary £150 per annum, with board and lodging.

Conditions of appointment and particulars of duties may be obtained from the undersigned, to whom application, with copies only of testimonials, should be sent on or before Thursday, 5th January, 1928. W. H. WARHURST, Hon. Sec.

Town Hall, Accrington.

Kent and Canterbury Hospital,

Canterbury. (119 Beds.)—An unforeseen vacancy has occurred for a THIRD RESIDENT MEDICAL OFFICER (Male), who will be required to take up duties about the middle of January, 1928.

Nine months' appointment. Salary £125 per annum. Good experience in administration of anæsthetics essential. Opportunities for experience in Ophthalmic and Orthopædic work.

Applications, stating age, qualifications, and experience, and enclosing copies of testimonials, should reach the undersigned not later than January 4th, 1928.

W. T. SOUTHWOOD, Secretary.

Royal United Hospital, Bath.

Wanted, on February 1st, 1928, a HOUSE SURGEON (Male—unmarried). The Assistant House Surgeon is a candidate for the post, and if appointed there will be a vacancy for an ASSISTANT HOUSE SURGEON. Salaries £120 and £100 respectively.

The appointment will be for six months at least.

Applications, with three recent testimonials, to reach the Secretary not later than January 14th, 1928.

J. M. SHEPPARD, F.C.I.S., Secretary.

Royal Devon and Exeter Hospital,
Exeter. (225 Beds.)

SENIOR HOUSE SURGEON.

Applications are invited for the post of Senior House Surgeon (Male) which will become vacant at this Hospital on 15th February next. The appointment is for twelve months, but candidates are eligible for re-election.

Salary at the rate of £200 per annum, with board, apartments and washing.

Applications, giving full particulars as to age and qualifications, together with certificate of registration and copies of three recent testimonials, should be sent to the undersigned on or before Thursday, 12th January, 1928.

By order of the Committee.

S. S. COLE, Secretary.

N.B.—Preference will be given to applicants who have had previous administrative experience.

Dated 28th December, 1927.

Barry Urban District Council.
ACCIDENT AND SURGICAL HOSPITAL. (30 Beds.)

HOUSE SURGEON (Male).

Applications are invited for the above appointment.

Candidates must be duly qualified and registered. Salary £200 per annum, with board and lodging.

Preference will be given to a candidate with previous experience, especially in the administration of anæsthetics.

The successful candidate must devote the whole of his time to the duties of his office, and to assist the Medical Staff, and act under the supervision of the Medical Superintendent, who is also Medical Officer of Health and School Medical Officer.

The appointment will be for a period of six months, to be renewed, if thought fit, for another period of six months, but not for any subsequent period.

The successful candidate will be required to commence duties at an early date.

Applications, stating age, qualifications, positions held, with copies of three recent testimonials, to be sent to Dr. P. W. Kent, Medical Superintendent, Public Health Office, Barry, not later than 3rd January, 1928.

20th Dec., 1927. (Signed) T. B. TORDOFF Clerk.

Leeds Public Dispensary.—Wanted, JUNIOR RESIDENT MEDICAL OFFICER. Salary £150 per annum, with board, residence and four shillings weekly for laundry. Separate sitting-room. Applications, with copies of three recent testimonials, to be addressed to the Secretary of the Faculty, Public Dispensary, North-street, Leeds.

The Mount Vernon Hospital for DISEASES OF THE CHEST, Northwood. Middlesex.

Ther is a vacancy for a MALE ASSISTANT RESIDENT MEDICAL OFFICER. Six months' appointment. Salary at the rate of £250 a year, with board, lodging, &c.

Applications with copies of three testimonials to W. J. MORTON, Secretary.

Offices: 7, Fitzroy-square, W. 1.

Wanted, an Indoor Assistant with good English qualifications, with view to early Partnership. Old-established semi-rural Practice in the Midlands.—Apply, in first instance, to John Richardson and Co., Limited, P.O. Box 36, Leicester.

Ex-House Surgeon requires Assistantship with a view to Partnership. Advertiser is very keen on Gynæcology. Near London preferred.—Address, No. 107, THE LANCET Office, 423, Strand, W.C. 2.

Secretary.—B.Sc. (Woman), Honours Chemistry, requires post in London as Secretary. Good qualifications, including shorthand and typewriting. Free now.—Address, No. 108, THE LANCET Office, 423, Strand, W.C. 2.

Evening or Week-end Work urgently required by hospital student (ex-officer, Public School and 'Varsity). Any part of London. Well up in office, literary, and laboratory work. Also expert and careful chauffeur, Personal references.—Address No. 104, THE LANCET Office. 423, Strand, W.C. 2.

'Varsity Graduate, aged about 30, as PARTNER in a well-established Country Practice within short distance of London. Sport of all kinds. Preference given to one having held Hospital appointments. Receipts over £3000 per annum. Panel 2000. Quarter Share for disposal (£800 guaranteed) at two years' purchase, payable £1000 down and balance by arrangement.—Apply to W. H. Grant (Arnold and Sons), 8, Welbeck-street, W. 1.

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Kingston-on-Thames. — Detached, pre-war HOUSE, freehold. Near new building estate. Excellent opportunity for practitioner or dentist. Good garden and garage; 4 bed and 3 reception rooms. Immediate possession for small initial payment.—Address No. 103, THE LANCET Office, 423, Strand, W.C. 2.

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PRACTICES AND PARTNERSHIPS FOR SALE.

1. PLYMOUTH.—Old-estab. Mixed-class PRACTICE, averaging nearly £1600 p.a. (last financial year £1728), including two small appts. about £100 and panel of over 1400. Visits 3s. 6d. to 7s. 6d., medicine 2s. 6d. extra. Mid. 3 gns., about 24 cases. Well-situated house with ample accommodation (3 sitting, 5 bedrooms, &c.); rent on lease £75 p.a. Premium £2400.
2. SCOTCH UNIVERSITY CITY.—Old estab. mixed class non-dispensing PRACTICE, producing for the past 12 months nearly £1900, including panel of over 2800. One appt. worth about £30 p.a. Fees 3s. 6d. to 10s. 6d. Midwifery from 3 gns., but has been discouraged. Large roomy house, easily worked, with 3 reception, 6 bedrooms, &c., and good professional accommodation. Price £3000, £1200 on mortgage. Premium £3000.
3. MIDDLESEX.—Rapidly growing town within 20 miles.—PARTNERSHIP.—A One-third Share in a very old-estab. middle-class Practice. Average income for the past 3 years approximately £2200, including panel of 2200. Fees from 2s. 6d. upwards. Small convenient house (2 reception, 3 bedrooms) can be rented on lease at £52 p.a. Sport and educational facilities. Prem. 2 years' purchase.
4. LONDON, WEST (within easy reach of Marble Arch).—Old-estab. Cash and Panel PRACTICE. Gross cash receipts for the past 12 months nearly £3000, including panel of nearly 4000. Fees 2s. to 7s. 6d. Mid., 2½ to 12 gns.; about 50 cases p.a. There are 2 good houses available on rental. Premium 2 years' purchase.
5. KENT.—Large town within easy reach of London.—Sound old-estab. Middle- and Working-class PRACTICE. Receipts for past 12 months over £2700, including panel of 1530. Exceptionally well-built and commodious house, with 3 reception, 7 bedrooms, &c., separate professional rooms. Price for freehold £2200, half on mortgage. Premium 1½ years' purchase. Partnership introduction.
6. WITHIN TWO HOURS OF LONDON (WEST).—Old-estab. unopposed PRACTICE situated in small Country Town (pop. 3000) within 6 miles of large town. Income averages £1777 p.a. (last year £1826), including union and clubs £250 and over £500 from panel. Visits 3s. 6d. to 21s. Mid. 2—7 gns.; about 20 cases yearly. Nearest opposition 4 miles. Railway station in place. Exceptional house with ample accommodation, large garden. Garage. Gas and water laid on. Held on long lease at low rental of £60 p.a. Premium 1¼ years' purchase. Very good society, sport, &c.
7. KENT (within 25 miles of London).—In a small Country Town, an old-estab. PRACTICE averaging over £1200 p.a., including panel of 558. Union and Vaccination £140, and other appts. One opponent. Visits 2s. 6d. to 12s. 6d. Mid., 2 to 10 gns.; about 20 cases yearly. Railway Station. Very good house, with large accommodation, 1½ acres of garden, tennis court, &c. Electric light, central heating. Price for freehold, £4000, £2000 on mortgage. Prem. 1½ years' purchase. Excellent educational facilities.
8. WITHIN 12 MILES OF LONDON.—Pleasant residential district (pop. 50,000). Small increasing PRACTICE worth last financial year £506, including panel of 280. Visits 3s. 6d. to 10s. 6d. Mid., 3 to 10 gns. House contains professional accommodation, 2 reception, 3 bedrooms, bathroom, &c. Good garden. Price freehold, £1400 (mortgage of £1000). Premium £600.
9. PARTNERSHIP.—Hospital Town within 50 miles of London.—A One-third Share, to commence with, in an old-estab. better-class Practice. Income this year at the rate of £4000. Fees 3s. 6d. to 7s. 6d., and some at 21s., medicine extra. Suitable house can be bought. Premium 2 years' purchase. Ingoing partner should be keen on medicine. Preliminary assistantship offered.
10. SOUTH-WEST OF ENGLAND.—In delightful Residential and Seaside Resort (pop. 6000, augmented to 18,000 in the season) an old-estab. non-panel, non-dispensing PRACTICE, averaging for the past 3 years £3248 p.a. Visits 5s. to 2 gns. Very little Mid. from 4 gns. upwards. Very good house (4 reception, 7 bedrooms, 2 bathrooms, &c.) with nearly 1 acre of garden. Garage. Electric light and gas. Can be rented at £175 p.a. Premium £5000, £3000 down and balance by instalments. Good society, sport and educational facilities. Prospects for surgery if desired.
11. SUSSEX.—PARTNERSHIP.—A One-third Share (with increase later) in a very good chiefly better-class Practice situated in a favourite Town within easy reach of Sea. Receipts for past 12 months approximately £3700, including panel of 1500. Fees 3s. 6d. to 15s. Suitable house can be bought, or rooms taken at first. Premium 2 years' purchase. Ingoing partner should be between 26 and 35.
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15. SUBURB OF BOURNEMOUTH.—Small well-estab. PRACTICE, producing £437 for the 12 months ending April last, including panel of about 110. Visits up to 10s. 6d. No Midwifery. Large residence with garden, garage, &c. Price freehold £3150 (£1200 on mortgage). Well adapted for letting part as flat. Premium £600. Ill-health reason for sale.
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17. SOUTH WALES.—Coast Town.—PARTNERSHIP.—A One-third Share (with succession in 1 or 2 years, as agreed) in an old-estab. middle- and better working-class Practice held by the vendor for the past 27 years. Average income for past 3 years £2692. Panel of 600. Fees chiefly 3s. 6d. to 7s. 6d. Midwifery 3 to 12 gns.; about 50 cases p.a. House contains 2 reception, 4 bedrooms, &c. Price £1500. Premium 1¾ years' purchase.
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Medical Practitioners wishing to dispose of Practices, or desiring to take Partners, are advised to negotiate the business through the BRITISH MEDICAL BUREAU. Vendors may depend upon receiving introductions only to eligible and bona fide purchasers. All information is treated in strictest confidence.

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SCHOLASTIC DEPARTMENT.

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Published by *THE LANCET Ltd.*, 1, Bedford Street, London, W.C.2.

PUBLISHED by the PROPRIETORS, THE LANCET LIMITED, No. 423, Strand, and No. 1, Bedford Street, Strand, in the County of London, and printed by HAZELL, WATSON & VINEY, LD., 52, Long Acre, W.C.2.—Saturday, DECEMBER 31, 1927.

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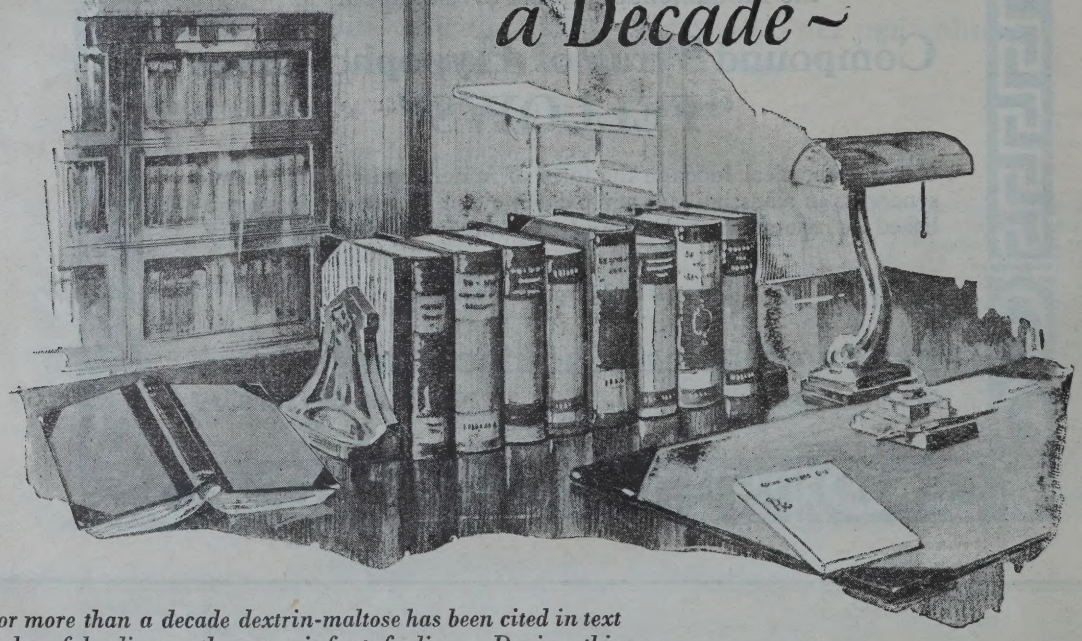

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